Contributions to Management Science

Klaus Brockhoff

# Management Ideas

## A Short History of Business Administration

Springer

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Klaus Brockhoff
Koblenz, Germany

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# Preface

Few business schools continue, and even fewer schools start these days with courses on the history of ideas. A particularly bitter complaint on the neglect of history is voiced with respect to one of the core fields of business administration, namely accounting. "*For nearly two decades now, history articles have not been welcomed by journals of the perceived highest echelon … Relatedly, history scholarship is frequently regarded as of secondary importance even when appearing in top-rank journals published abroad … At many universities, accounting history studies must be supplemented by work of a more contemporary genre lest their authors are discriminated against in tenure and promotion decisions*" (*Richard K. Fleischmann/Vaughan S. Radcliffe/Paul A. Shoemaker, eds., Doing Accounting History. Contributions to the development of accounting thought, JAI: Amsterdam et al.2003, vii*). These observations are not peculiar to accounting, and they are not related to the USA alone. There are exceptions, but they have become rare. As will be explained in more detail, this can lead to several deficits in management education, including fallibility to accept potentially new ideas, which in fact are re-packaged older ones. Furthermore, a historical perspective is an excellent approach to mentally organize the often diverging models and tools presented in a program. Thus, at least some basic understanding of the history of the discipline would be useful and necessary. However, a more complete presentation of the topic may well arrive at more than 1200 pages, as is evidenced, for instance, by the great *History of Economic Analysis* by the late *Joseph A. Schumpeter (Oxford University Press: New York 1954).* The *Palgrave Handbook of Management History*, edited by *Bradley Bowden et al. (Springer Nature: Cham 2020),* offers 1464 pages of text. A perspective that includes societal developments and public management is offered by *Vadim Ivan Marshev* in *History of Management Thought (Springer: Cham 2021)* with 710 pages, although its focus is primarily on organizations and human resources. On business administration, one could draw on *Dieter Schneider, Betriebswirtschaftslehre, Vol. 4 (Oldenbourg:Munich/Vienna 2001),* with 1036 pages, or the shorter *Entwicklungen der Betriebswirtschaftslehre*, edited by *Eduard Gaugler* and *Richard Köhler (Schäffer-Poeschel: Stuttgart 2002*), with 544 pages.

For a course, this is too much, and for a focus on management in *all* specialized sub-disciplines or branches of business, it is too little. This book strives for a middle road to become acceptable for coursework on the one hand and motivating curiosity for detailed and more profound studies on the other hand. It originates from a German text used during the first 20 years of twenty-first-century business school teaching *(Klaus Brockhoff, Betriebswirtschaftslehre in Wissenschaft und Geschichte, 6th ed., Springer: Wiesbaden 2021).*

An ever-increasing use of English in coursework is a major reason for this text. Hopefully, it will be used beyond German-speaking communities. Therefore, a few specifics that cater to the German arena are deleted from the original text. Still, as in any historical work, the author's background and perspective cannot be eliminated. This should not be too limiting a constraint because the text does not reach out beyond the 1970s (because then the trend to specialized sub-fields of business administration would have required a different approach, which would at the same time have exploded the number of pages). The strong position of the academic developments of business administration both in the USA and in Germany is easily recognized. Furthermore, unfortunate historical events in Germany during the twentieth century offer an opportunity to demonstrate how its political-economic environment influences mainstream business thoughts.

Citations are made in footnotes: In historical texts, in particular, the author dislikes to skip pages to the back of a book when searching for a reference. It is much easier to find the information at the bottom of a page. To read the complete source of a particular citation repeatedly should not cause a nuisance to the reader. Translations of original contributions in French, German, Italian, or Latin are those of the author. Relatively extensive quotes are used to deliver an impression of their author's way of presenting their arguments or findings.

The book has four parts. I begin by describing management ideas as arising from experiences accumulated in society. Later, this knowledge is made available in comprehensive books for merchants. Business administration as a science does not yet exist, although emerging ideas can be taught. Theoretical ideas are developed from agriculture or in economics. In the second part, I refer to indications of a science with particular reference to business administration. It is shown how business administration lives up to these indications. At the beginning of the twentieth century, the discipline had arrived at business schools and universities, curricula were designed and taught, methodologically controlled research developed, and infrastructure of professional associations and publications came into life. The third part summarizes developments of the institutionalized discipline as interacting with its societal and economic environment. Germany offers extreme examples in this respect. Furthermore, the discipline splitting into sub-disciplines or branches calls for sketches of some of their developments. In the final part, several limitations to historical analyses of this sort and essential learnings from the history of thought are presented.

I am grateful to WHU—Otto Beisheim School of Management for the opportunity to use its library and IT department, and I would like to thank their staff members for their friendly help. My friend and colleague Hermann Simon talked

me into writing this text, which offered a welcome opportunity to engage more in enjoyable reading during the past year or so. Corona tied everybody down so that some more homework could be done.

Koblenz, Germany
Spring 2022

Klaus Brockhoff

# Contents

# Part I
# Before the Institutionalization of Business Administration as a Science

# Chapter 1
# Early Devices and Techniques in Western Asia and the Near East


**Abstract** Management ideas evolved from experiences made in economic activities. This happened even before the invention of script or numbers. Later on, managing larger establishments and taxation called for bookkeeping techniques, rules for pricing goods, regulations for charging interest, and ideas to curb opportunism. Such developments occurred in the Near East or Western Asia, and much is documented in holy scriptures.

## 1.1 Before Script and Numbers in Iraq

In what we call today Iraq and neighboring regions, relatively highly developed cultures arose very early. This includes developing economic relationships beyond a family or a clan, where some resources were commonly shared and lending could be observed closely. Obligations resulting from lending within families and clans could be subject to so-called clan control.[1] Nevertheless, even in such environments, things can be forgotten, a trustee can have passed away, and not everyone behaves honestly. As script and numbers have not yet been developed, other tools were needed to document economic relationships.

People started with developing physical representatives of the resources being exchanged. It is reported that around 8000 BC, relatively small tokens made of clay came into use to represent agricultural products or animals.[2] At around 4400 BC, people scratched symbols on the face of the tokens that could represent certain types

[1] W. Ouchi, A conceptual framework for the design of organizational control mechanisms, *Management Science,* 1979, Vol. 25, 833–848.

[2] Denise Schmandt-Besserat, *Before Writing: From Counting to Cuneiform,* Vol. I, Austin/TX 1992. Richard Mattessich, *The Beginnings of Accounting and Accounting Thought, Accounting Practice in the Middle East (8000 BC to 2000 BC) and Accounting Thought in India (300 BC) and the Middle Ages,* New York/London 2000.



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**Fig. 1.1** Ball-shaped envelope with impressions of the seven tokens shown separately. Source: Denise Schmandt-Besserat, *Before Writing: From Counting to Cuneiform,* Vol. I, Austin/TX 1992. Envelope from Susa, Iran, ca. 3300 BC, The lenticular disks each stand for "a flock" (−10 animals?). The large cone is a very large measure of grain, the small cones are small measures of grain. Courtesy: Musée du Louvre, Département des Antiquités Orientales. Richard Mattessich, *The Beginnings of Accounting and Accounting Thought, Accounting Practice in the Middle East (8000 BC–2000 BC) and Accounting Thought in India (3000 BC) and the Middle Ages,* New York/London 2000, 31

of items.[3] These means of documentation could not well be protected from fraud. Slightly more than 1000 years later, fraud was made a bit more complicated by developing a new technique. The tokens were encapsulated in a hollow clay ball, and before closing the two halves of the still wet ball, the included tokens were impressed on the outside, together with a sign representing an observer. Thus, upon opening the ball or envelope at a later time, one could see whether the mark was undamaged and whether the impressions left by the original tokens on the outside of the ball matched its contents (see Fig. 1.1). Similarly, chains of tokens were used in some places. Both techniques increased the level of control substantially. Moreover, it foreshadowed the idea of double-entry bookkeeping.

[3] Constantin Leyerer, Historische Entwicklung der Buchführung seit der ersten Kenntnis bis zum XVII. Jahrhundert, *Zeitschrift für Handelswissenschaft und Handelspraxis,* 1922, Vol. 16, 123–152.

**Fig. 1.2** Obverse, edge and reverse of an archaic Babylonian proto-cuneiform tablet bookkeeping record (ca. 3200–3000 BC). Source: Peter Damerow, The Origins of Writing and Arithmetic. In: *The Globalization of Knowledge in History*. Berlin, Max-Planck-Society 2012, https://doi.org/10.34663/9783945561232-10

## 1.2 Early Bookkeeping in the Near East

Early developments of numbering systems and scripts made it even easier to document the contents of clay envelopes on their outside. Around 3100–3000 BC, proto-cuneiform and cuneiform tablets were developed (see Fig. 1.2). Resource planning, the aggregation of different types of resources like cereals or labor, and the comparison of planned versus actual values could be accomplished.[4]

At Ur, around 2000 BC, quantitative management of human resources could be based on a transfer of values from an earlier period added to the planned labor input to arrive at a debit or planned value. This was confronted with the documentation of the actual labor input to calculate the difference. This then served as the entry to the next period. All this was dated and signed.

Large numbers of cuneiform tablets (Fig. 1.3) and stone sculptured texts provide ample evidence of the legal and economic life in early Babylon. King *Hammurapi* (1793–1750 BC) developed earlier rules and regulations further. Purchases, lending,

[4] Hans J. Nissen/Peter Damerow/Robert K. Endlund, *Archaic bookkeeping: writing and techniques of administration in the ancient Near East*, Chicago/Il 1993; Peter Damerow/Robert K. Endlund, Die Entwicklung der Buchhaltung im 3. Jahrtausend v. Chr. In: Hans J. Nissen et al., edts., *Informationsverarbeitung vor 5000 Jahren. Schrift und Techniken der Wissensverwaltung im alten Vorderen Orient,* Hildesheim/Berlin 2004, 76–89.

**Fig. 1.3** Cuneiform tablet from around 2800 BC. Source: FAZ; half-moons representing the value of one, full moons representing the value of ten

renting, credits, education of future workers were items regulated by law. Credits could be given with or without charging interest. The interest rate varied between 20% p. a. for credits involving silver or 33% p. a. for those involving barley. It seems that the higher risk of returning perishable barley as compared with silver is reflected in the interest rate. Similar regulations of economic activities are observed in other kingdoms as well, like Elam or Assur.[5] *Hammurapi's* Code also regulated prices. This may have been a protective measure because the royal enterprises had the power to determine transactions at large.[6] Textile production, farming, and ceramics production were activities of relatively large establishments. Quite a bit of inventive activity went into ways to find a way to circumvent otherwise illegal business activities.[7]

*Henry David Thoreau* (1817–1862) speculated that most people had learned to read for their comfort, but they learned calculus to keep their books and not to be cheated.[8] One idea to avoid this danger is mandatory bookkeeping. This was introduced in 1728 BC. Also, there existed some sort of business organization,

[5] M. San Nicolò, Darlehen. In: Erich Ebeling/Bruno Meissner, edts., *Reallexikon der Assyriologie,* Vol. 2, Berlin/Leipzig 1938, 123–131.

[6] J. Renger, Palastwirtschaft. In: Dietrich Otto Edzard/Michael P. Streck et al., *Reallexikon der Assyriologie und vorderasiatischer Archäologie,* Vol. 10, Berlin/New York 2004, 276–280; Waldemar Wittmann, *Mensch, Produktion und Unternehmung,* Tübingen 1982, 26.

[7] Hans Neumann, Das Recht in Babylon, 207–230; Joachim Marzahn, Die Arbeitswelt – Wirtschaft und Verwaltung, Handel und Profit, 231–276; Cornelia Wunsch, Geld- und Kreditwirtschaft in nachbabylonischer Zeit, 443 – 448. All in: *Babylon – Wahrheit*, München (Munich) 2008.

[8] Henry David Thoreau, *Walden or Life in the Woods,* Boston 1854.

and female secretaries were mentioned.[9] Tables of compound interest made its calculation easier in daily business.[10]

These facts indicate a substantial level of management knowledge and methods. However, no textbook to document and teach this knowledge is known. Perhaps, the complexity of management decisions was relatively low when use was made of the subsidiary principle. For instance, slaves engaged in larger projects had to care for their food, not their master. They might have been served by migrating food dealers. Technical advice to run farms came in the form of educational poems. Much more is known on the larger-sized palace plants than for small-sized businesses.[11] Learning by doing developed business knowledge.

## 1.3 Later Developments in India

Substantial management knowledge was available for the public administration in India. This is well documented in the Maurya Period (fourth to third century BC). A primary example is the *Arthaśhāstra* of *Kautilya* (probably identical to the minister *Chanakya* who lived from about 350 BC to about 283 BC). This instruction to a king with rules for good governance was probably written about 300 BC. The enormous size of the kingdom to be ruled is a good reason for the effort to provide the government with rules and regulations for almost every sphere of life (Fig. 1.4).

Concerning documentation, four achievements are mentioned:

- A substantial number of definitions are developed that help to standardize reporting (such as sales, expenditures, cost, capital, etc.).
- Ideas to care for documenting non-finished work at the end of a reporting period; furthermore, intermediary products, assurances, and risks are recorded.
- Internal control, revisions, and taxation procedures are developed.
- Feint profits are discussed.[12]

However, the book is also of great interest beyond accounting:

- A model state organization with a hierarchical structure is described. The areas of competence for the "superintendents" or ministers are clearly outlined to avoid

[9] Bernhard Bellinger, *Geschichte der Betriebswirtschaftslehre,* Stuttgart 1967, 12.

[10] Michael Hudson, How interest rates were set, 2500 BC-1000 AC; Más, tokens, and forms as metaphors for interest accrual, *Journal of the Economic and Social History of the Orient,* 2000, Vol. 43, 132–161.

[11] Peter Bedford, The Economy of the Near East in the First Millenium B. C. In: J. G. Manning/Ian Morris, *The Ancient Economy. Evidence and Models,* Stanford/CA. 2005, 58–83, here 75.

[12] Richard Mattessich, *The Beginnings of Accounting and Accounting Thought, Accounting Practice in the Middle East (8000 BC to 2000 BC) and Accounting Thought in India (300 BC) and the Middle Ages,* New York/London 2000. In this case, the author relies strongly on A. K. Bhattacharyya, *Modern Accounting Concepts in Kautilya's Arthaśhāstra,* Calcutta 1988.

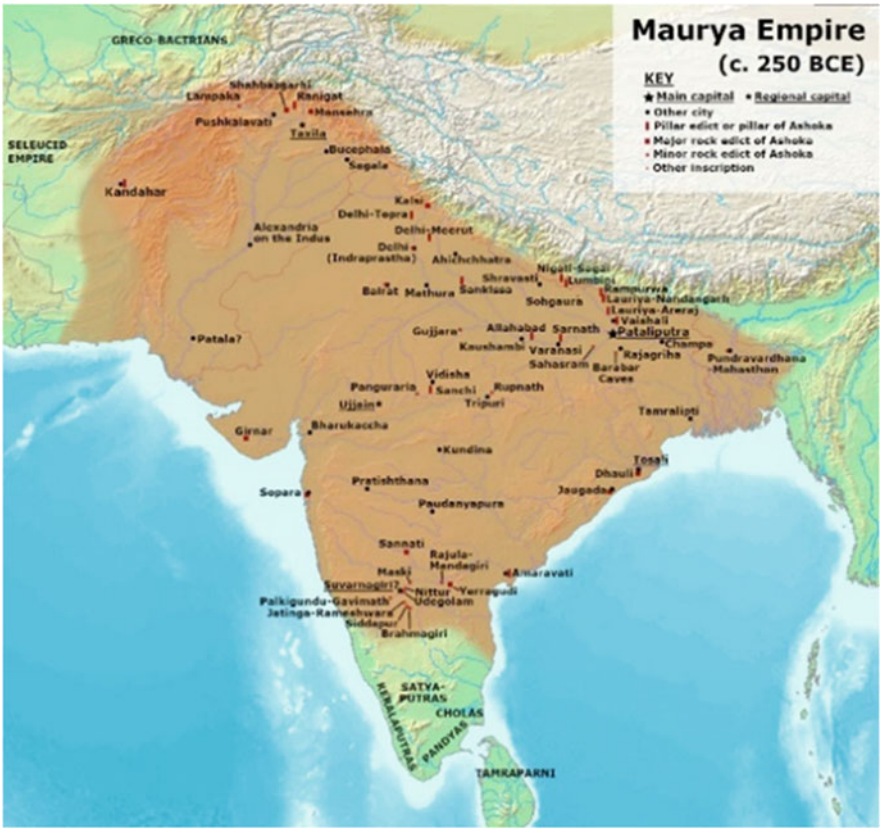


**Fig. 1.4** The expansion of the kingdom during the Maurya Period. Source: Wikipedia, accessed October 1, 2021

conflicts of decision making. Ministers supervise areas such as commerce, mining, or coinage. Among the duties of the Superintendent of Commerce are to "*ascertain demand or absence of demand for various kinds of merchandise and rise and fall in their price (slightly changed, K. B.), which may be the products either of land or of water and which have been brought in by land or by water path. He shall also ascertain the time suitable for their distribution, centralization, purchase, and sale.*" [13]

- A highly differentiated system of measures and weights is developed, as well as standards for metal contents of coins made from copper or gold. For instance, the basis for determining mass in today's meaning is one-eighth of the smallest stone that a rotating wheel can cast up.

[13] English translation from Sanskrit by R. Shamashasty, Bangalore 1915: www.sdstate.edu/projectsouthasia/upload/book-II-Duties-of-Government-Superintendents.pdf, Book 2, Chapter XVI (accessed January 20, 2012).

- Rules are set for several processes. For instance, when auctioning off merchandise, the supplier has to make three announcements of the asking price before knocking it down to a bidder.
- Observation of such rules and regulations is mandatory for the officials of the royal administration. Any trespasses are severely punished in various ways. Honesty is requested many times in the book. Furthermore, "*offering money (to an official) is bribery*, " which must be punished. Should an official sell goods from the royal possessions to the public, he has to observe the public interest: "*He shall avoid such large profits as to harm people*." Officials are not only threatened by punishments but they can also be offered incentives to influence their behavior. In cases of cost-based pricing, the profit margin should reflect eventual scarcity and the eventually higher risks arising in foreign trade compared with trade within the kingdom.
- It is possible to charge interest. Maximum rates of interest reflect the risks associated with the respective transaction and the parties involved. In transactions among private individuals, the rate shall not exceed 15% p. a. Among merchants, the maximum rate is 60% for low-risk transactions, 120% for higher-risk transactions, and it raises to 240% for foreign trade transactions.[14]
- The author is aware of the possibility that because of information asymmetries, people can exhibit opportunistic behavior. As in modern agency theory, hidden information, hidden action, hidden characteristics, and hidden intention are described. To deal with these behavioral deficits, a broad spectrum of activities is laid out: Securing transparency of operations by defining accounting standards, multi-level controls, incentives, and punishments are considered to assure that officials at lower hierarchical levels behave according to the intentions of their superiors.[15]

Although developed primarily for good public administration, this collection of rules and regulations, incentives, and controls offer strong guidance for good private business practices. In this respect, it is ahead of the documentation of similar business practices in the Western World by about 2000 years. This may explain why *Kautilya's Arthaśhāstra* has become a guiding text for management literature and teaching primarily in modern India. Observing public benefit in determining profit goals re-occurs repeatedly in history (Sect. 8.1 (2)).

A further advantage for cultural development was the use of the so-called "Indian" numbers (since about 700 BC), which may have originated from Sumer (about 4000 BC). They were superior to Greek or Roman numbers not only by the

[14] For more detail see: Ratan Lal Basu, *Kautilya's Arthashastra (300 BC): Economic Ideas,* www.smashwords.com/books/downloAC/65088/1/latest/0/0/katylias-arthasastra-300-bc-economicideas.pdf (created 2011, accessed January 21, 2012).

[15] Klaus Brockhoff, Agency theoretic ideas in ancient India: The Arthashastra of Kautilya, *Management and Organization History,* 2014, DOI https://doi.org/10.1080/17449359.2014.980268- = Vol. 10, 39–51.

inclusion of a cipher[16] for "zero." These ciphers reached Central Europe much later through *Leonardo Fibonacci Pisano*'s "*Il liber abbaci"* in 1202 and perhaps also through the experiences made by Venetian merchants.

## 1.4 Hebrew and Islamic Experiences Traveling to Europe

About 300 BC–200 BC, Hebrew experiences were collected in the Tanakh or the Old Testament of the Bible. Of particular interest are *Deuteronomy (Devarim)*, the *Wisdom Books*, notably the book of *Jesus Sirach (Ecclesiasticus)*, and the book of the *Songs of Salomo*. In several cases, the readers are demanded to behave honestly in trading, avoid corruption or being corrupted, and not engage in crediting or giving bail. These demands are based on experiences and remain unspecific. However, *Deuteronomy* is very specific on the question of charging interest. One should not charge interest on credited money, food, or anything else. This refers to one's own people. To charge interest to foreigners is permitted.[17] As will be seen later, this demand travels to Medieval Europe, where it influences Christian teaching.

*Jesus Sirach* takes a very critical view of seeking profit and on merchants.[18] The art of earning money for its own sake is considered guilty and leads astray. This idea was also presented by *Aristotle* somewhat earlier, as will be seen below (Sect. 2.1). Profits earned from a difference between the buying price and selling price are considered sinful. Three explanations are offered for this view. (a) Cultural differences may have existed between the more or less immobile farmers and shepherds and the more mobile migrant merchants, who absorbed more knowledge by their mode of living alone. Information asymmetries arise from this, which may lead to opportunistic behavior, which is even more likely as the merchant travels away from his customer, who more or less remains in place. (b) Products produced by farmers and shepherds are well known to the members of their clan and to their neighbors, which reduces the risk of opportunism among these groups.[19] (c) A third explanation is seen in an uneven distribution of wealth resulting from the merchants' profits compared with their customers.[20] Anyhow, the view presented in the *Wisdom Books*

[16] This word originates from „sifr" representing the empty spot in numbers. Hans-Joachim Störig, *Kleine Weltgeschichte der Wissenschaft,* Frankfurt am Main 1983, 27,37,46,130; Thomas de Padova, *Alles wird Zahl,* München (Munich) 2021, 70 et seq. The slow adoption of the „Indian" numbers may have to do with different ways of writing them. Even today, Americans and Europeans write the ciphers 1 and 7 differently.

[17] Chapter 25, Verses 20,21. Similiar views: *Exitus*, Chapter 22, Verse 24; *Levitikus*, Chapter 25, Versus 36–37.

[18] Joshua ben Elizar ben Sira is the author of this wisdom book: Chapter 27, Verses 1–2.

[19] Thomas Naumann, Handel/Händler, *www.bibelwissenschaft.de/stichwort 20437,* accessed January 30, 2017.

[20] Martin Hengel, *Judentum und Hellenismus. Studien zu ihrer Begegnung unter besonderer Berücksichtigung Palästinas,* Tübingen 1973, 76 et seq.

stays alive through the times of the Roman Empire, where farmers were generally held in greater esteem than merchants (Sect. 2.2).

Islamic influences on the taxation and the tax administration in Egypt from 900 to 1050 AD impress with a well-developed accounting system. Income and expenditures are recorded, aggregation of different kinds of taxes and transfers between accounting periods is performed. Agio and disagio are applied and accounted for. Precautionary measures are taken against manipulations of currency.[21]

A few hundred years later, market-friendly views are presented in Islamic scriptures. For a dynamic economic development, "*crucial factors [are] already in place in pre-Islamic Arabia's nascent economy were the use of gold as a means of exchange; rules set by private accord for safe passage of traders; and an appreciation of the trade-off between risk and reward that guided merchants to seek out activities promising the highest profit. The Prophet of Islam, who descended from a dynasty of entrepreneurs, strengthened this dynamic further. Muhammed established a market in Medina, and . . . made consumer protection and competition policy a religious obligation. The initiatives accorded with the Koran . . . Muhammed's deregulation of prices—he proclaimed ‚prices in the hand of God'—was a seminal innovation in market regulation.*"[22] However, taking interest continues to be forbidden among Muslims. Eternal hellfire awaits those who continue to take interest after having received a warning not to do so. Moreover, compound interest is even more condemned than interest.[23] Consequently, as in other cultures, ingenious procedures have been invented to circumvent these constraints (hīla). The relationships between creditor and debtor are re-defined as sharing profits on capital or compensation for a breach of contract. Today, similar arrangements are observed in more advanced forms of Islamic Banking.

After the successful penetration of the Moores into Spain (mainly since the battle of 711 AD), they transferred their ideas and culture to this part of Europe. In the twelveth century, *Ali al-Dimashqi* presented ideas on economics and management in his book "*A Guide to the Merits of Commerce and to Recognition of Both Fine and Defective Merchandise and the Swindles of those who deal Dishonestly.*"[24] Major contributions of this work are:

[21] Constantin Leyerer, Die Verrechnung und Verwaltung von Steuern im islamischen Ägypten, *Zeitschrift der Morgenländischen Gesellschaft,* 1953, Vol. 103, 42–69.

[22] Benedikt Koehler, *Early Islam and the birth of Capitalism,* Lanham et al. 2014.

[23] The Holy Koran, Sure 2, 275; Sure 4, 159; Sure 3, 125.

[24] The full name of the author is given as: Abu ad-Facl Ja'far ibn 'Ali al-Dimashqi. Here, we follow the translation into German: Hellmut Ritter, *Ein arabisches Handbuch der Handelswissenschaft,* Diss. Bonn, Berlin 1916 (=*Der Islam*, Vol. VII, 1–91). The first 43 pages present comments on the text, which then follows on the remaining pages.

- The market mechanisms are well understood.[25] Supply and demand determine market prices. Variables that influence prices are discussed, such as the distance between supplier and consumer.
- The emergence of money is explained. Money serves as an indicator of wealth and a device that facilitates the exchange of goods.
- The use of the "Indian" ciphers is of great advantage in making all sorts of calculations.
- Because nobody can produce all goods necessary for a living, division of labor is necessary. This implies that goods are exchanged. To make this exchange easier, people agglomerate in cities.
- Counter to what we read in the Hebrew literature (and what we will read in Roman books), commerce is considered the best and most profitable activity for people in this world. However, this is only true if merchants, who follow an egoistic moral, behave honorably despite their motivation. Fraud and swindling exist, and therefore a range of precautions to avoid being trapped by a dishonest merchant is presented.

Another Arabian author presents a more critical evaluation of profits in the fourteenth century. *Ibn Chalcūn* (1332–1406) argues that commerce is accepted as a natural procedure for acquiring wealth, even so from a religious perspective. However, trading partners should be aware of while and betrayals used to widen their margin.[26]

We have now quite considerably moved ahead in time. Managerial ideas arose in other parts of the world as well, and to learn about these, we shall go back in history. At first, developments in Greece are presented, and in following those in Rome. After that, we shall look at medieval central Europe.

[25] Hamid Hosseini, Understanding the Market Mechanism Before Adam Smith: Economic Thought in Medieval Islam. In: S. M. Ghazanfar, ed., *Medieval Islamic Economic Thought: Filling the Gap in European Economics,* London/New York 2003, 88–107, here 93.

[26] Ibn Chalcūn (full name: Wali ad-Din Abd ar-Rhamān ibn Muhammad Ibn Chaldūn al-Hadrami), *The Muqacdimah. An Introduction to History* (1377), Franz Rosenthal, ed., New York 1958 (www.slimphilosophy.com)

# Chapter 2
# Management of Homes, Estates, and Trade in Europe Until the Middle Ages


**Abstract** Greek philosophers, political minds in ancient Rome, and theologians in the Middle Ages developed management ideas primarily to run agricultural estates, homes, or monasteries. Charging interest and pricing continued to be discussed on the basis of natural law and ethical reasoning. Double-entry bookkeeping was described and thus made public. No longer it was a trade secret. Philosophers observing international business relations became open to understanding the functioning of markets with consequences for pricing.

## 2.1 Management Ideas by Greek Philosophers

Early economic thinking in Europe can be traced back to ancient Greece, or about 1800 years before the events reported at the end of the last chapter. Economic aspects are touched upon in classical Greek poetry.[1] Experiences on the management of estates are offered by *Xenophon* (430–354 BC) in *"Oikonomicus"*[2] In managing a household, decently seeking surpluses and wealth are considered as economic objectives. Economics is interpreted as a rational action. In yet another work, the campaign of Cyrus,[3] leadership models are developed. *Xenophon* depicts a type of leadership that, based on the personal authenticity of the leader, builds on motivation and as little coercion as possible towards the subordinates. Leadership should take their interests into account. Various authors have examined and discussed the consistency of these views with modern leadership models.[4]

[1] Bertram Schefold, Spiegelungen des antiken Wirtschaftsdenkens in der griechischen Dichtung. In: Studien zur Entwicklung der ökonomischen Theorie, XI, Die Darstellung der Wirtschaft und der Wirtschaftswissenschaften in der Belletristik, *Veröffentlichungen des Vereins für Socialpolitik,* New Series, Vol. 115/XI, Berlin 1992, 13–89.

[2] Xenophon, *Ökonomische Schriften,* Berlin 1992.

[3] Xenophon, *The Anabasis or Expedition of Cyrus, and the Memorabilia of Socrates,* J. S. Watson, ed., London 1854.

[4] For instance: John H. Humphreys et al., Towards the augmenting role of authenticity: Xenophon as leadership theorist, *Management & Organizational History,* 2011, Vol 6, 183 – 207.



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*Aristotle* (384–322 BC) is aware of these works. Ideas on economics are offered as part of *"Politics,"* which was presumably written between 325 and 323 BC,[5] but this part does not come from *Aristotle* himself.[6] The household is considered an economic entity within a state. Its management follows principles different from the management of the state. The household is the home of a master-decisionmaker experienced in its management. It is also called "personal economy." The master presides over a hierarchical order. This involves relationships between the master and the slaves, the husband and his wife, the father and his children. These relationships are considered given by nature. In managing the household, expenditure should never exceed the income (financial equilibrium). Although the household is considered an almost autonomous economic unity, wealth may be increased by better management, avoiding shortages, trading surpluses for goods necessary to increase the standard of living. These activities lead the way for the emergence of money as it facilitates trading and monetary transactions. The value of the money is determined by its coinage.

These economic activities to prudently run a household or an estate are clearly distinguished from seeking wealth for its own sake, which is called "chrematistics." This "unnatural" or artificial way to make as much profit from sales as possible is facilitated by the existence of money. The ban of charging interest is correlated with this view: The author argues that while animals can reproduce themselves in nature, this cannot be observed from coins. Thus, interest would be counter to nature. The wealth generated from chrematistics is "without goal and limit," and for this reason, it is heavily criticized:

> As, however, the art of acquisition of wealth is a double one, as I said, partly directed to increasing wealth for its own sake and partly to satisfy the needs of the household; only the latter is necessary and praiseworthy, and the former is simply based on sales, which is criticized rightfully, because it is not related to nature but people draw again from each other; so with the fullest reason the interest on credits and usury are detested because they draw revenues immediately from the money, and disregard what money was invented for. Only to facilitate trade, money came into use, but interest increases it by itself. For that reason, the word for "interest" in Greek means something like "offspring," because the offspring usually is similar to its creator, and in this respect, interest would be money taken from money. For this reason, this art of accumulation of wealth is the most unnatural of all.[7]

These are strong value judgments on the unnatural character of increasing wealth that prevailed for centuries. Even today, they are considered as an orientation of

[5] This work is available in many editions, which do not coincide completely. *Aristotle's Politics*, Carnes Lord, ed., 2nd ed., Chicago/London 1984, 2013; *Aristotle's Politica*, David Ross, ed., Oxford 1963; Aristotle, *Oeconomica*, E. S. Forster, ed., Oxford 1920; *Aristoteles', Politik*, Greek and German, Franz Susemihl, ed., Leipzig 1879 (reprinted Düsseldorf 1992). In the following, the references are made to this edition.

[6] Hellmut Flashar, *Aristoteles. Lehrer des Abendlandes*, 2nd ed., München (Munich) 2013, 107.

[7] *Aristoteles', Politik*, Greek and German, Franz Susemihl, ed., Leipzig 1879 (reprinted Düsseldorf 1992), Book 3, §23.

management.[8] It has been speculated that prohibiting interest emerged from the idea that granting credits is exclusively meant to bridge emergencies, and for ethical reasons, this situation should not be exploited. This would contribute to preserving the survival of the relevant community and thus have a societal importance. The absolute weight assigned to this value judgment is a primary point of criticism raised by *Joseph A. Schumpeter*.[9] Furthermore, it is quite astonishing that the whole treatise refers to the household and the management of farms. At the time, other types of business existed as well. Craftsmen, for instance, had to cooperate at a large scale when equipping a navy fleet. Their work had to be coordinated. Mining operations placed high demands on planning, organization, finance,[10] without this being a subject of Greek publications.

Greek philosophers also contributed to developing an idea of systematic approaches toward finding knowledge and cognition. As explained later (Part II), systematic approaches to developing knowledge are one characteristic of a scientific discipline. In science, one should not simply speculate, offer beliefs, or find results by "groping about"[11] *Plato* (427–348/347), in his work on "*The Republic" (Politeia),* uses the art of rational, dialectic discourse to arrive at the important distinction between opinion or belief and knowledge.[12] One of these discourses with his elder brother *Glaucon* says that only the dialectic method goes to the roots of a problem without making further preconditions. For the purpose of his work, the discussants define knowledge (or science), comprehension (understanding), belief, and probability. Belief and probability together define opinion, while knowledge and comprehension define cognition (Fig. 2.1).

As will be seen later (Sect. 3.1), the dialectic method is not undisputed. However, the attempt to develop an idea of cognition without having a particular application in mind is of great importance. It is characteristic of classical Greek thinking, while later Roman philosophers gave more weight to specific applications.[13]

[8] Claus Dierksmeier/Michael Pirson, Oikonomia Versus Chrematistics: Learning from Aristotle About Future Orientation of Management, *Journal of Business Ethics,* 2009, Vol. 88, 3/417 – 430.

[9] Joseph A. Schumpeter, *History of Economic Analysis, 6th ed., New York 1966, 57.*

[10] Siegfried Löffler, Die Bergwerkssklaven von Laureion, *Abhandlungen der geistes- und sozialwissenschaftlichen Klasse der Akademie der Wissenschaften und der Literatur,* Mainz, Part 1, 1955, 1101 – 1217; Part 2, 1956, 883 – 1018.

[11] Immanuel Kant, *Kritik der reinen Vernunft.* Preface to the 2nd edition, 1787 (www.sapientia.ch/Buchseiten/philosophie.htm/Immanuel Kant-Kritik der Vernunft.pdf (accessed September 23, 2011).

[12] Benjamin Jowett, ed., *The Republic of Plato*, London/New York 1901.

[13] H. J. Störig, *Kleine Weltgeschichte der Wissenschaft,* 2nd ed., Frankfurt/Main 2007.

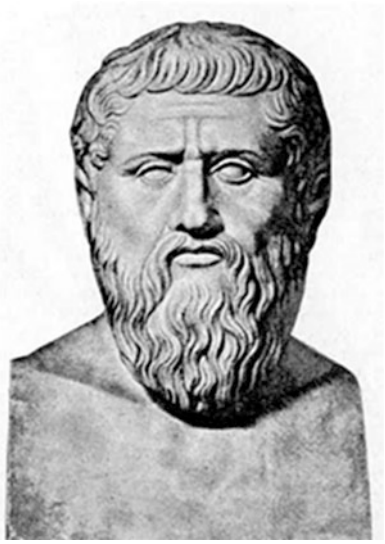

**Fig. 2.1** Plato bust. Source: A. Baumeister, *Denkmäler des klassischen Altertums,* Vol. 3, 1888, 1335; Wikipedia.de, Platon-2.jpg

## 2.2 Management Ideas by Political Minds in the Roman Empire

In the Roman Empire, thinking was influenced among others by the Greeks. The emerging management texts are devoted primarily to managing estates. In some cases, they offer astonishingly deep specializations in this field.

First and foremost is *Cato the Elder,* i.e., *Marcus Portius Cato* (234–149 BC). The Political and military leader wrote *"De agri cultura"* around 150 BC.[14] It is said to be the only wholly preserved Latin prose writing. In 162 paragraphs, advice is given on everything from keeping slaves to feeding livestock to harvesting olives, from recipes to religious customs to contracts. The author shows great respect for peasants, not least for being brave soldiers. *Cato* acknowledges that trade is sometimes more profitable than agriculture but also much riskier. Equally risky, he says, is money-lending, "if it were honorable." The dishonorable nature of lending is already apparent because people who take interest are punished twice as severely as thieves. The now so-called problem of fixed costs is recognized here regarding the fixed supervisory capacity required when size of a field varies within certain limits.

It is only in passing that we mention *Marcus Tullius Cicero* (106–43 BC) and *Marcus Terentius Varro* (116–27 BC), mainly since *Cicero* follows *Cato* and even

[14] www.penelope/uchicago/Thayer/E/Roman/Text/Cato/De_Agricultura/home.html (accessed January 12, 2008).

more radically rejects wholesale trade as a lie and regards handicrafts as dirty.[15] In addition, the microeconomic aspects in works by both authors are marginal.

Reference should be made to Lucius Iunius Moderatus Columella (0–70 AD). In addition to a work attributed to him on fruit tree cultivation, the 12 volumes of "De re rustica" are worth mentioning.[16] Land cultivation alone represents an honest and humane way of increasing property, it is stated at the outset.[17] The first five books deal with agriculture, the following five with animal husbandry. The eleventh volume, in particular, is devoted to the activities of the estate manager. The (verbalized) agricultural production function links the factors of production multiplicatively. The factors of production are land, equipment, knowledgeable and willing workers, and administration. The manager should be experienced, and better still is the owner himself on the spot, the "praesentia domini"[18] This presence has recently become known as "management by walking around." Relationships between farming intensity and land yield, standard times for farmworkers, and references to the importance of the transportation costs of products for the success of an estate are included in the writings. The span of control is also described in the first volume, and it is given as ten supervised workers.[19] These management rules have not yet been substantiated by scientifically conducted empiricism but rely on generalized experiences. A comparative calculation of vineyard costs includes an interest of 6%.[20] This indicates that interest is accepted.

The authors take a discursive rather than analytical approach. Once again, the concentration of topics on the agricultural enterprise is astonishing. Especially in the later Roman Empire, there must have been artisanal and industrial productions that sold their products not only locally: "*... the Roman economy had a recognizable industrial sector*" [21] W*aldemar Wittmann* (1925–1988) asserts that the technical development in Roman times obviously has to be applied in the same way to the economic development in manufacturing and mining. At the same time, these businesses, measured in terms of personnel, are by no means always small family enterprises. "*... Records of transactions, accounting techniques, financial accounts and lists of debtors existed in considerable numbers in classical Greece and among the Romans. Cumbersome was ... the commercial arithmetic due to the rather inexpedient system of numbers .... It suggests itself to conclude from such*

[15] Marcus T. Cicero, *De officiis (Vom pflichtgemäßen Handeln),* Stuttgart 2007, 131 et seq. (Cicero, *De Officiis,* Walter Miller, ed., London/New York 1928.)

[16] Lucius Iunius Moderatus Columella, *De re rustica, Libri duodecim,* Latin-German edition, Book 12, Will Richter, ed., München (Munich)/Zurich 1981–1983.

[17] Ibid., vol. 1, preface, 15.

[18] Ibid., vol. 1, secs. 1.1.1, 1.3.11,.1.1.18, 1, 37,49.

[19] Ibid., vol. 1, sec. 9.7, 95.

[20] Ibid., vol. 2, sec. 3, 7 et seq.

[21] R. Bruce Hitchner, The Advantages of Wealth and Luxury. The Case for Economic Growth in the Roman Empire. In: J. G. Manning/Ian Morris, *The Ancient Economy. Evidence and Models,* Stanford CA 2005, 207–222, here 217.

*documents the level of accounting at large estates and manufactories*"[22] However, this is not documented in textbooks. Concerning calculations, one should imagine that 7 + 4 = 11 is expressed as VII plus IV = XI.

Further reasons suggest that an "art" of business and corporate management was known and passed on. Two examples can be cited to illustrate this:

1. The tuff stone from the edge of the Neuwied Basin in Germany (that had resulted from heavy volcanic activities), which was even partly mined underground, was used in construction work in the Roman city of Xanten, some 120 miles away, among other places. Millstones made of close-by Mayen basalt lava or neighboring production centers were found in England, the Alpine Regions, and non-Roman Germanic territories hundreds of miles away. Small hand mills, larger millstones, and mortars were made here; the waste was used as road building material in the immediate vicinity. This suggests that production and logistics management allowed carrying out such complex processes. "*Very striking is . . . the perfect organization of the trade: The quarries supplied only raw blocks. Their final processing into finished millstones took place in numerous specialized workshops in the Mayen vicus (settlement, KB) north of the Winterfeld lava flow and near the Roman port of Andernach"* (Fig. 2.2).

   The finished hand mills were given uniform decorations. Apparently, there were even specialized "metal workshops where iron parts for the mills were made . . . . A comparable division of labor is so far known for Roman millstone quarries only one other time . . ."[23] The production of hand mills is estimated at nearly 40,000 per year, which employed about 585 workers. This proves an extensive division of labor and specialization. Consequently, there must exist organizational arrangements to harmonize and link the outputs of the specialized activities. This could be done through markets, through cooperation, or through planning.[24]
2. The production and distribution of ceramics, i.e., pottery, were also systematically studied (Fig. 2.3). It is noted that "*Both artisanal and mass producers required skilled, specialized labor and had, to survive, to sell their goods in large quantities, often over considerable distance's . . . .It is not surprising that the really large Roman pottery industries provide the most impressive evidence of complex and highly sophisticated production methods."*[25] In particular, potteries in La Graufesenque in Southern France branded their products, segregated second-choice qualities, and distributed their products from North Africa to

[22] Waldemar Wittmann, *Mensch, Produktion und Unternehmung,* Tübingen 1982, 68.

[23] Fritz Mangartz, Vorgeschichtliche und Mittelalterliche Mühlsteinproduktion in der Osteifel. In: Alain Belmont/Fritz Mangartz, eds. *Mühlsteinbrüche. Erforschung, Schutz und Inwertsetzung eines Kulturbetriebes europäischer Industrie (Antike - 21. Jahrhundert),* Internationales Kolloquium Grenoble, 22–25.09.2005, Mainz 2006, 25–34, here 29 et seq. Fritz Mangartz, *Römischer Basaltlava-Abbau zwischen Eifel und Rhein,* Mainz 2008.

[24] Ibid., with reference to various other sources.

[25] Bryan Ward-Perkins, *The Fall of Rome and the End of Civilization,* Oxford/New York 2006, 106.

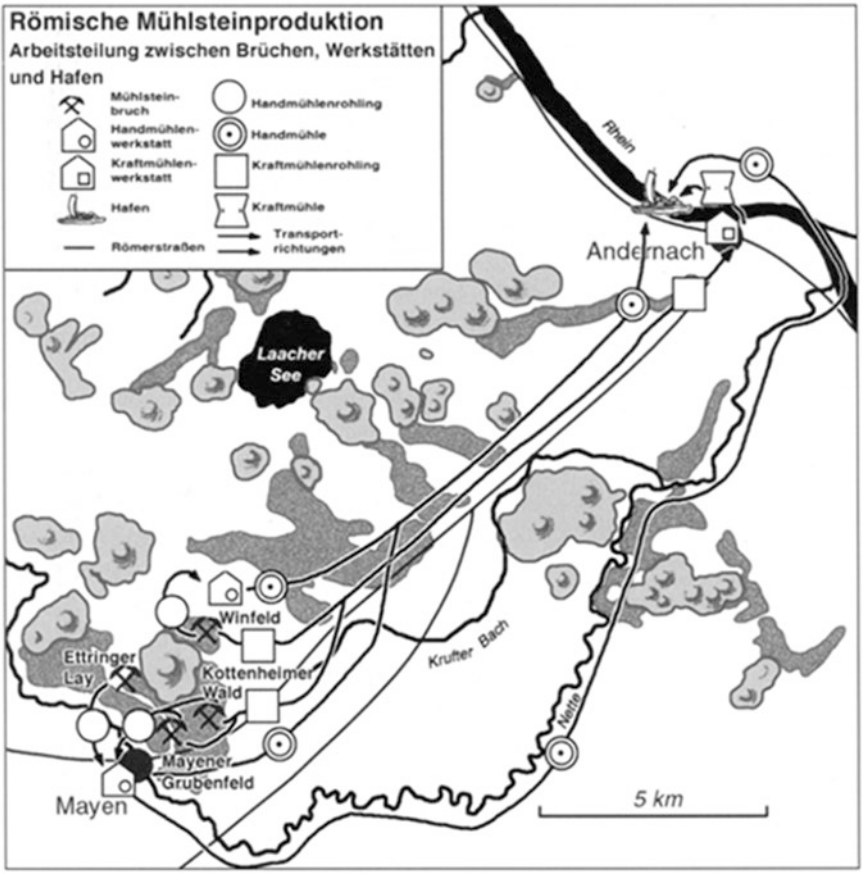


**Fig. 2.2** Geographical scheme of millstone production in the Mayen-Andernach area. Source: Fritz Mangartzs, *Römischer Basaltlava-Abbau zwischen Eifel und Rhein,* 2008

Britain, from Spain to the Rhenish Limes as evidenced by archaeological finds. Operators were also able to solve the problem of regulating the feeding of large communal kilns by several local competitors. *"To reach the customer required a network of merchants and traders, as well as a transport infrastructure of roads, wagons, and beasts of burden, or sometimes boats, ships, rivers, and seaports. Exactly how all this worked, we will never know because we have too few written records from the Roman era to document it . . . "*[26]

The same applies to the supply of a large administrative and military apparatus, some of which is concentrated in large cities. How did the imperial manufactories, recorded in a list around 400 AD, plan, organize, and work when they produced

[26] Ibid., 109.

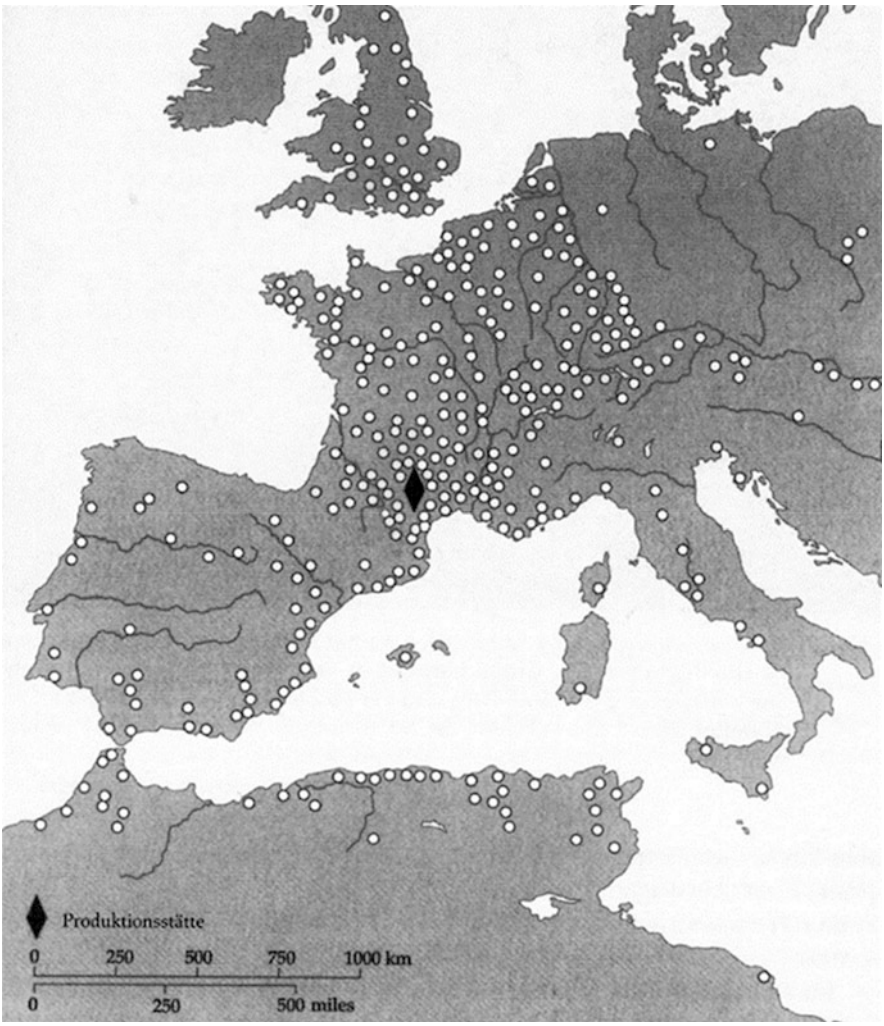


**Fig. 2.3** Archeological finds and production site of ceramics from La Graufesenque/France. Source: Bryan Ward-Perkins, *The Fall of Rome and the End of Civilization,* Oxford/New York 2006; filled diamond = production site; open circle = archeological find

breastplates in Mantua or bows in Pavia?[27] Money transactions were necessary for more extensive production facilities, the handling of trade, or the expansion of estates. This was also true of state financing by private individuals, who could expect advantages from it. It should be borne in mind that the prohibition of speculation in monetary transactions for senators (*Lex Claudia* of 218 BC) or of

[27] Ibid., 112.

ownership of ships bigger than necessary for private use in economically operating an estate fell into oblivion relatively quickly. To circumvent the prohibitions, dormant partnerships in corporations were established, freed slaves were used as straw men, even becoming "directors" of limited partnerships,[28] etc. All of this required specific expertise, but it is unlikely to have been transmitted in textbook form because of the nature of these activities.[29] Virtue preachers such as *Cato* or less virtuous people such as *Brutus* engaged in money lending to municipalities, whereby interest rates of around 50% p. a. were agreed upon and achieved (however, the rate of inflation is not mentioned at this point).[30] Much of the business know-how of this era was lost after the fall of the empire.

As in Greece, trade and manufacturing are not held in the same high esteem as agriculture, and it may be for this reason that we lack documentaries of the management practices in these professions. Even so, some organizational concepts have emerged that are applied till today. The cumbersome calculations with Roman numerals continued as a burden borne in Central Europe until the Middle Ages.

## 2.3 Management Ideas by Theologians in Central Europe in the Middle Ages

1. Monasteries of Central Europe liberate physical work from the odium of being unseemly for higher classes. This is popularized in the commandment "*ora et labora et lege" (pray, work, and read)* in the rules established for the Monte Cassino monastery founded by *Benedict of Nursia* (about 480–547). The monastery was established in 529. An ascetic lifestyle and rationally planned work patterns let medieval monasteries become the most productive organizations of their time.[31] Contributing to this are the leadership principles laid down in the rules of the order, and in some cases, freedom from tributes to the nobility or the bishops. Beyond monastic life, the rules are attributed great importance for the development of European law. In the late Carolingian Empire (ninth to tenth centuries), the emperor even decreed that the Benedictine Rules were generally binding for the empire.[32] Presumably, the success of the application of the rules

[28] A. E. Petrosyan, The germ of capitalism (Roman business through slave as the primordium of private enterprise). Part I: Above free labor, *Journal of Management History,* 2021, Vol. 27, 247–262; Part II: A counterpart of corporation, ibid., 574–595. Doi.org/10.1108/JMH-07-2020-0043.

[29] Werner A. Krenkel, Varro: Menippeische Satiren. Wissenschaft und Technik*, Berichte aus den Sitzungen der Joachim Jungius Gesellschaft der Wissenschaften Hamburg,* Hamburg 2000, Vol. 18.1/27et seq.

[30] Moses J. Finley, *The Ancient Economy,* Berkeley et al. 1973, 55 et seq.

[31] Alfred Kieser, From Asceticism to Administration of Wealth. Medieval Monasteries and the Pitfalls of Rationalization. *Organization Studies,* 1987, Vol. 8, 103–123, here 104.

[32] Hans Hattenhauer, *Europäische Rechtsgeschichte,* 4th ed., Heidelberg 2004, 215.

brought this about. If interpreted etymologically correctly, they can still claim validity today, even outside monasteries.[33] At around 800 AC, under the reign of *Charlemagne*, the management of royal estates was regulated together with basic rules of governance, the requirement of two sorts of registers or books (one reporting services or goods provided to the king, the other collecting all payments made), and the obligation to notify the king's court of any leftovers at the end of the fiscal year.[34]

By observing a balanced partition of time between work and prayer, high productivity is achieved and helps to increase a monastery's wealth significantly. This facilitates the admission of monastic members who cannot become monks and devote themselves mainly to the heavy physical work. It also allows the flourishing monasteries that promise long-term survival to broaden their economic base by attracting donations, which is similar to external growth. This success leads to a conflict with the idea of asceticism. If work is not to be suppressed entirely, there are several possibilities to soften the conflict. The monks can make their work less productive economically, i.e., they can become artistically or scientifically active. Later religious orders avoid the problem by having their members devote themselves exclusively to non-economic work such as nursing the sick or missions. Finally, time for prayer might be extended: "*The monks tried to minimize the working time to maximize time for prayer*, " reflects this in an exaggerated form.[35] Tax waivers by the monasteries on dependent farms, which was possible because of the monastery's good economic performance, carries in its core the future liberation from such dependence on the nobility.[36] The Cistercians chose to return to the old work ethos without pomp and much adornment of their churches. At the same time, they improved the reporting system, which made it easier to monitor compliance with the rules. Another achievement was the establishment of a unique set of rules ("*carta caritatis*") that served to coordinate geographically separated activities and to unify the goals of independent monasteries constituted according to the same principles. Such identical management rules became exemplary for other—also secular—communities.[37]

The mastery of reading and writing by monks allows the documentation of experiences and rules. Thus, they can be learned and passed on more easily. The economic success of monasteries makes less successful landlords look enviously at them. This is one of the reasons why monasteries sometimes invest

[33] In popularized form: Anselm Bilgri/Konrad Stadtler, *Finde das rechte Maß. Benediktinische Regeln für Arbei und Leben heute,* 5th ed., München (Munich)/Zurich 2009.

[34] The Capitulare de Villis vel curtis imperialibus, html.le.ac.uk/hi/polyptyques/capitulare/trans.html (accessed April 23, 2022).

[35] Alfred Kieser, From Asceticism to Administration of Wealth. Medieval Monasteries and the Pitfalls of Rationalization. *Organization Studies,* 1987, Vol. 8, 103–123, here 114.

[36] Hans Hattenhauer, *Europäische Rechtsgeschichte,* 4th ed., Heidelberg 2004, 226.

[37] Gert Melville, *Die Welt der mittelalterlichen Klöster. Geschichte und Lebensformen,* München (Munich) 2012, 123 et seq.

**Fig. 2.4** Thomas Aquinas. Source: Frontispiece of the 1496 edition. This is not a portrait. Thomas Aquinas is already wearing a halo, the Holy Spirit in the form of the dove is whispering into his ear, several books can be seen in the background (an indication of erudition and his authorship), and his writing hand is resting on a book, with writing utensils in front of it

considerably in their protection by walls and in their security of supply for their daily living. The Cistercian monastery of Maulbronn/Germany, founded in 1147/1148, offers an impressive example of this. However, the seizure of monastic estates for the covering of state budgets as, for example, by *Ulrich von Württemberg* (1487–1550) or much later in the secularization under *Napoléon* in 1802, cannot be effectively countered from the less powerful monasteries despite the local protective measures.

The monasteries and their administrations show that effective and efficient management rules can successfully be developed and applied outside profit-oriented establishments. Some of these rules are still being followed today.[38]

2. *Thomas Aquinas* (1225–1274) teaches much later (Fig. 2.4). Particularly well known is the "*Summa Theologiae*," which appeared from 1267 to 1273.[39] Aristotelian heritage and Christian doctrine are brought together in this work. Presumably, the economic development at the time of the work's composition is the reason for the author's intense preoccupation with economic issues. On the one hand, these include the problem of pricing in trade and, on the other, the justification of the prohibition of interest. Justice of exchange (iustitia communativa) and justice of distribution (iustitia distributiva) are discussed

[38] Tonia Ruppenthal, The business model of a Benedictine abbey 1945–1999, *Journal of Management History,* 2020, Vol. 26, 41–59.

[39] A beautiful reprint of excerpts from the edition published in Nuremberg in 1496 was published in 1991 in the series "*Klassiker der Nationalökonomie*" in Düsseldorf.

simultaneously.[40] Both of these concepts are already found in *Aristotle*'s *Nicomachean Ethics*.[41]

Justice of exchange is established when the value of the exchanged services is identical, and the price is "just" (*iustum pretium*). Value deviations from the just price can occur occasionally in individual exchange transactions,[42] which we explain today with imperfect markets or—so also *Thomas Aquinas*—fraud. Of course, manipulations of quality or exchanges of sham goods are inadmissible; exchanges must be factually just.

Imperfect markets result from the guild constitution. "*Whatever their motives—the pursuit of profit, sufficient food, or the protection of craftsmen untrained as merchants—the guild rules . . . served one primary purpose: reduction of competition*"[43] Guilds also hindered technical progress, which was more in the interest of the merchants than the guild masters. The procurement costs and production costs must be regarded as influencing prices, together with the wages determined in line with the guilds. The profit margin has to consider the preservation of the social position of the master. Merchants may seek reasonable profits, which are additionally justified by reference to product improvements, local and temporal arbitrage, risks, and the intention to promote public benefit. In order to operationalize the value in an exchange, one needs a yardstick, which is found in the "price paid." If one does not want to discover circularity in this argumentation, one must assume the just price as a generally applicable but regulated market price (price paid = cost plus acceptable margin = just price = value = price paid). In connection with price formation, it must also be noted: There is a right to property because otherwise, markets would not exist.

As in *Aristotle*, money is perceived by *Thomas Aquinas* as a medium of exchange. A loan can therefore only be repaid in nominal terms. Interest is not justified:

> Taking interest for borrowed money is in itself unjust because something is sold that does not exist . . . .Money, however, according to Aristotle, was invented primarily to effect acts of exchange. Thus, the real and actual use of money is at the same time its consumption or its expenditure, in so far as it is used in transactions. Therefore, it is intrinsically impermissible to accept a price, called interest, for the use of borrowed

[40] Here and in the following: Arthur F. Utz, Die Ethik des Thomas von Aquin, in: *Vademecum zu einem Klassiker der Wirtschaftsethik,* Düsseldorf 1991, 23–31; Peter Koslowski, Ethische Ökonomie und theologische Deutung der Gesamtwirklichkeit in der 'Summa Theologiae' des Thomas von Aquin, Ibid., 43–59.

[41] Aritoteles, *Nikomachische Ethik,* 8th ed., Berlin 1983, 97 et seq.

[42] Joseph Schumpeter, *History of Economic Analysis,* 6th ed., New York 1966, 93.

[43] Alfred Kieser, Zur Vorgeschichte der Organisationstheorie: Einige Anmerkungen zur Interpretation historischer Institutionen am Beispiel der Zunft. In: Wenzel Matiaske/Wolfgang Weber, *Ideengeschichte der Betriebswirtschaftslehre, ABWL, Organisation, Personal, Rechnungswesen und Steuern,* Wiesbaden 2018, 231–253. Guild rules extended into the early 19th century.

> money. Moreover, as a man is bound to return other things which he has acquired unlawfully, so he is bound to return the money which he has received as interest.[44]

*Thomas Aquinas* relies on a traditional church doctrine, which is expressed by the Second Lateran Council of 1139, the prohibition of interest by Pope *Innocent III* of 1215, or the Council of Vienne in 1311. However, some exceptions are quite obviously also used as ways to circumvent the prohibition. If the agreed time of repayment of a credit is not observed by the deptor, any damage incurred in the following period may be claimed as default interest. This can lead, for example, to a situation where the creditor and debtor have openly agreed on a quick repayment, but both secretly agree that this date will not be met, but a much later one. Then, compensation is due for the remaining time. This does not go so far as to make opportunity costs of using money generally acceptable as a reason for calculating interest. But sharing in the debtor's risk also allows to charge a premium. The downside of the interest rate prohibition is that the relatively secure investment opportunities of capital are missing. This limits wealth creation and thus economic growth.*Aquina*'s conception of the economy "*represented an imposing scientific achievement because his explanation of economic activity was firmly anchored in his philosophical-theological system, but it allowed, on the other hand, this new system to become independent and to derive from it general solutions to specific questions . . . .*"[45]

3. Long-distance trade, in particular, requires a well-developed monetary system, financing instruments, such as bills of exchange, and procedures of risk allocation by insurances and partnerships. In practice, all these instruments develop at the time. In parallel, their documentation and calculation require the further development of accounting systems from simple records to forms of double-entry bookkeeping by merchants and bankers. This serves management at the same time by better transparency and control. One should imagine that accounting in many cases still consisted of simple chronological records. According to today's understanding, these records list both private and business transactions; they record natural goods and monetary receipts and disposals, travel expenses, and much more. This is demonstrated in the early "*Schlandersberg account books*" for the years 1363–1369. Interestingly, the revenues appear to be incomplete because only monetary income is recorded.[46] This type of accounting could not meet the extended requirements. At the same time, however, systems of books

[44] Thomas von Aquin, *Summa theologiae,* Vol. II, 2, 78, quoted from "Vademecum zu einem Klassiker der Wirtschaftsethik", Düsseldorf 1991, 15.

[45] Bernhard Bellinger, *Geschichte der Betriebswirtschaftslehre*, Stuttgart 1967, 26; see also: Alejandro Chafuen, *Faith and Liberty. The Economic Thought of the Late Scholastics*, Lanham et al. 2003.

[46] Emil von Ottenthal, Die ältesten Rechnungsbücher der Herren von Schlandersberg, *Mitteilungen des Instituts für Österreichische Geschichte,* 1881, Vol. 2, 551–614. (http://www.archive.org/stream/ mitteilungende09gescgoog#page/n562/mode/2up), The account books are kept in the South Tyrolean Provincial Archives, Schlossarchiv Kasten.

developed, in which a gradual condensation of information on the one hand and differentiation of transactions on the other (for example, cash transactions versus those in which claims or obligations built up until they were balanced and could literally be "deleted") were distinguished.[47] In such a case, a separate cash book also exists for the household expenses of the employees and the merchants ("*Quaderno di spese di casa*"). It is made plausible that these books were intended to serve various functions: To avoid forgetfulness, to ensure control of employees, especially in cash management, to provide evidence of business success, to reduce potential conflicts among business partners utilizing interim financial statements. According to the different purposes, "central" books are supplemented by "peripheral" books.[48]

The emergence of an accounting system from the different purposes or needs is particularly impressively illustrated in this case, and it anticipates very early on later ideas of the purpose-oriented structuring of accounting.

4. A documentation of the accounting system known as "double-entry bookkeeping, " with a balance sheet as an overview of creditor and debtor positions, is pulled out from the sphere of commercial secrecy in the second half of the fifteenth century. The first documented use of double-entry bookkeeping is found in 1340 in municipal account books in Genoa.[49] Whether earlier applications existed in the mercantile sphere is a matter of dispute. First, the account "*Della mercatura e del mercante perfetto*" by the Croatian *Benedetto Cotrugli Raugeo (Benedict Kotruljević*, 1416–1469) in 1458 explained this technique. It was published only much later (1573) in Venice.[50] Therefore, more widely known became the work presented by *Luca (Bartolomeo) Pacioli* (also called *Luca de Burgo*, 1445–1509; Fig. 2.5) in 1494 as part of a mathematical text.[51] Its title page gives a detailed account of the program of the book (Fig. 2.6; in the first edition, it is printed

[47] Franz-Josef Arlinghaus, *Zwischen Notiz und Bilanz. Zur Eigendynamik des Schriftgebrauchs in der kaufmännischen Buchhaltung am Beispiel der Datini/di Berto-Handelsgesellschaft in Avignon (1367–1373),* Frankfurt/Main 2000.

[48] Ibid., 119, 133f., 448.

[49] Fabio Besta, *La Ragioneria,* Vol. 3, 2nd ed., Milano 1920, pp. 273 et seq.; Balduin Penndorf, Die italienische Buchhaltung im 14. und 15. Jahrhundert, und Pacioli's Leben und Werk. In: Baladuin Penndorf, ed., *Luca Pacioli, Abhandlung über die Buchhaltung 1494,* Stuttgart 1933, 3 et seq. (with further references).

[50] Stefano Coronella, *Storia della ragioneria italiana. Epoche, nomini e idee,* Milano 2014, 61; Alan Sangster, *Libr.XV: Contrugli and de Raphaeli on Business and Bookkeeping in the Renaissance,* Stirling 2014. On Contrugli's work, which survives only as a copy, the merchant Marino de Raphaeli added a text on Venetian double-entry bookkeeping with accounting examples, which was only published in digital form in 2014: Thomas Hermann, Luca Pacioli in the Light of Business Administration and Economia Aziendale. Prolegomena zu einer vergleichenden Analyse historiographischer Narrative. In: Wenzel Matiaske/ Wolfgang Weber, eds, *Ideengeschichte der BWL, ABWL, Organisation, Personal, Rechnungswesen und Steuern,* Wiesbaden 2018, 85–129 , here 107.

[51] Luca Pacioli, *Summa de arithmetica, geometria, proportioni et proportionalita...,* Venezia 1494. For the original text, see: iacew.com/library, accessed October 24, 2021.

**Fig. 2.5** The painting shows *Luca Pacioli* in a Franciscan habit with *Guidobaldo da Montefeltro*, Duke of Urbino (?), and mathematical instruments. Source: wikipedia.org, accessed August 7, 2011; painting attributed to Jacopo de' Barbari, 1495. Luca Pacioli's initials can be seen on the lower right of the book, but not the title of the book, as is frequently claimed (location of the painting: Capodimonte Castle Museum, Naples/Italy, inv. Q 58)

without the framework). Interesting times: *Pacioli* taught mathematics to *Leonardo da Vinci,* his later friend, who rivaled *Michelangelo Buonarroti* in the arts.

*Luca Pacioli* (a) reveals accounting as a mathematical and thus logically structured technique, (b) explicitly points out its control function, and (c) makes "secret knowledge" public so that it can be used to improve management. The latter is very important. A few years later, *Lorenz Meder* (?–1561) justifies printing his "*Handelbuch* . . . "[52] in its "Preface" by stating that it reports on *". . . hidden arts, which have never come into light before and have not been revealed by anyone until this hour and been printed*." The period between 1400 and 1800 AD was even called the "*age of secrets*" because useful knowledge needed in "*specific technical situations or political-economic constellations*" led

[52] Nürnberg (Nuremberg) 1558.


Summa de
Arithmetica geo
metria. Proportioni et proportionalita:
Continentia de tutta lopera.

**Fig. 2.6** Title page of the work of *Luca Pacioli*, second edition, 1523

to a trade with secrets that was often cultivated by Jews. Unfortunately, at this place, the same is not demonstrated for secrets of management, but for technical or medical knowledge even involving techniques of secrecy protection, such as encryption.[53] Encryption became a subject in the education of merchants.

It is said that *Pacioli* had already made a separation of private and business households.[54] However, if one looks at the fact that the inventory should also list clothing, beds, linen, or tableware, this opinion can hardly be followed. It is also said that *Pacioli* had not covered balance sheets or inventories. On the contrary, he gives specific advice on how to establish inventories and an annual balance sheet or account. This is demonstrated in the eleventh section (Tractatus XI) of his book:[55]

[53] Daniel Jütte, *Das Zeitalter des Geheimnisses. Juden, Christen und die Ökonomie des Geheimen (1400–1800),* Göttingen/Oakville, CT 2011.

[54] Bernhard Bellinger, *Geschichte der Betriebswirtschaftslehre*, Stuttgart 1967, 22.

[55] Luca Pacioli, *Summa de arithmetica geometria, proportinoni: et proportionalita:... Venezia* 1494; excerpted translation under the title: *Abhandlung über die Buchhaltung* 1494. Translated into German from the Italian original of 1494 and provided with an introduction on „Die italienische Buchhaltung im 14. und 15. Jahrhundert und Paciolis Leben und Werk" by Balduin Penndorf, Stuttgart 1933 (reprint Stuttgart 1968), chapters 2, 3, 36.

> Chapter 2. Of the first principal part of this treatise, the inventory, what it is, and how it is made among merchants.
>
> . . . First of all, the merchant must draw up carefully his inventory in such a way that he always first writes down on a sheet of paper or in a special book what he thinks he owns in the world in terms of real estate and movables, always beginning with the things that are precious and can easily be lost, such as cash, precious stones, silverware, etc., because the real estate, such as houses, fields, lagoons, brackish water ponds, fish ponds, and similar things cannot be lost like movable things. Then one must write down the other assets one after the other, always noting the day, the year, the place, and its name in the inventory first. This inventory must be made on one and the same day. Otherwise, it would disturb the future trade. . .
>
> Chapter 3. Sample inventory with all its necessary formalities.
>
> In the name of God, 1493, at Venice, on November 8. . . .
>
> Chapter 36. Summary of rules and types concerning the keeping of a commercial general ledger.
>
> 6. The balance sheet of the general ledger is a sheet folded lengthwise, on which you write the creditors on the right and the debtors on the left. The general ledger is in order if you see that the debit total is as much as the credit.
>
> 7. The balance of the general ledger must be equal; that is, the sum must be equal, I say neither debtors nor creditors, but the sum of the credit must be equal to the sum of the debit. If this is not the case, there is an error in the ledger. . . .

This proves that inventory is not only mentioned but is even presented with a well-justified classification rule. The vital principle of a single closing date is explicitly mentioned. The example given in *Pacioli*'s Chapter 3 (above) requires an account in uniform currency. The balance is explained. References to its structure are made, closing entries are explicitly mentioned, and the demand for temporal continuity is put forward. Helpful hints are not missing either, like the one that a cash account must never close negative. This demonstrates the rich detail in *Pacioli*'s presentation as well as the deep understanding of the functions of double-entry bookkeeping in terms of achieving transparency and better control.

The two early works on accounting mentioned here suggest good merchant practice or behavior, i.e., they make moral claims beyond offering technical advice.

*Pacioli*'s work has occupied researchers for centuries with questions such as: On what predecessors could he draw? Whom was he addressing? What impact did his work have in his homeland and other countries? These and related questions have been the subject of intense and controversial debate.[56] A considerable number of further works on accounting and commercial calculus appear in the following period.[57]

[56] Thomas Hermann, *Luca Pacioli im Lichte von Betriebswirtschaftslehre und Economia Aziendale. Prolegomena zu einer vergleichenden Analyse historiographischer Narrative.* In: Wenzel Matiaske/ Wolfgang Weber, eds., *Ideengeschichte der BWL, ABWL, Organisation, Personal, Rechnungswesen und Steuern,* Wiesbaden 2018, 85–129.

[57] Rudolf Seyffert, Betriebswirtschaftslehre, Geschichte, *Handwörterbuch der Betriebswirtschaft,* 2nd ed.., Stuttgart 1938, Col. 932–955.

**Fig. 2.7** Dr. Martin Luther as Augustin monk by Lucas Cranach the Elder, 1520. Source: Wikipedia.de

5. Only a generation or 30 years after the publication of *Pacioli*'s "*Summa* . . .," one of the epistles of the German monk *Martin Luther* (1483–1546) (Fig. 2.7) was published in Wittenberg/Germany in 1524. Here, he dealt with the problems that had already preoccupied *Thomas Aquinas*, namely pricing and charging interest.[58] He clearly addresses the fact that ethical commandments and market laws touch different spheres:[59]

> We will here speak of the abuse and sins of the mercantile trade/as far as it concerns the conscience./As it affects the purse's harm/we will let princes and lords see to it/that they do their duty to it.

The merchant must, therefore, deal with ethical imperatives on the one hand and with the contextual conditions of his economic activity on the other. This is difficult to realize—and to understand. *Luther*'s writing, published the previous year, helps to understand it. He develops two societal models.[60] (a) In the kingdom of God live exclusively merchants who obey all Christian commandments. They do not charge interest, and they calculate just prices. The economy is static. There is no need for special supervision. (b) Only a minority of these merchants live in the model of a secular kingdom. Only this minority fully applies the commandments. The majority, however, deviates from the Christian commandments, for instance, by unfair pricing or charging interest. This allows them to take advantage of the minority. Markets to correct this behavior cannot be relied upon because competition is limited. Therefore, an authority must intervene to protect the minority and the market participants

[58] Martinus Luther, *Von Kauffshandlung und Wucher*, Wittemberg 1524 (reprint Düsseldorf 1987).

[59] In the facsimile edition of the "Klassiker der Nationalökonomie," this is found on the 3rd leaf. Page numbers are missing.

[60] Martin Luther, Von welltlicher Uberkeytt, wie weyt man yhr Gehorsam schuldig sei. In *D. Martin Luthers Werke*, Vol. XI, 246–280 (http://gutenberg.spiegel.de/buch/von-weltlicher-Obrigkeit-wie-weit-man-gehorsam-schuldig-sei-267/1, retrieved October 11, 2017); Klaus Brockhoff, A short note on Martin Luther's idea of business ethics, *Management and Organization History,* Vol 13, 2018, 54–64. Calvin does not accept the doctrine of two kingdoms. The kingdom of God must be enforced.

in general from abusive economic practices on one another. This requires, among other things, that a fair or just price be determined and enforced.

On the problem of the "*iustum pretium*, " the same position is taken as in *Thomas Aquinas*, by referring to the commandment of charity. The price to be agreed upon should be "just and equitable, " which, of course, requires a specification. Pricing is based on the "cost plus fixed fee" principle, where the margin is intended to maintain the guild member's economic and social existence and possibly some social advancement. Since this fails in general, *Luther* calls for an authority or a committee to review the calculations. This committee is advised to take into account costs as well as a gross profit margin ("was dem kauffmann kund zukomen"), which guarantees "seyne zymliche nahrung" (that is, societal standing in accordance with his status). Demanding a higher price would be usury. The same applies if a price is influenced by a speculative use of foreseeable shortages, monopolies, cartels, or fraud.

Of course, official pricing is not immune to opportunistic misjudgments of scarcity conditions, corruption of decision-makers, or breaking rules. This is especially true in dynamic terms. Cost-based pricing rests on the notion of a world of localized exchanges in small firms. Where large long-distance trading houses dominate the view, one is more likely to arrive at a notion of competitive pricing.[61] This is particularly observed by Spanish scholastics of the "*School of Salamanca*" in the sixteenth century (*Francisco de Vitoria* (1494–1560), *Martin de Azpilcueta* (1492–1586), *Luis de Molina* (1535–1600), and others[62]), who recognize price as the result of supply and demand in competitive markets. The Spanish authors consider government price controls counterproductive, as they either encourage black markets or create a shortage of goods. Members of the "school" justify private property because the owner is concerned for its best use, and they justify interest from the demonstrable opportunity cost of money to the lender, his risk, and the possibility of productive use of the money (opportunities). One may speculate whether these authors knew the Islamic literature mentioned above (Sect. 1.4) and were influenced by it. In addition, long-distance foreign trade and international competition had developed almost at their doorsteps. Thereby, they could have developed a worldview much different from that of *Luther*, who spent most of his life in small towns with primarily regional economic activities and guilds protecting their standing.

Regarding the prohibition of interest, *Luther*'s narrow view again is close to *Thomas Aquinas.* It refers to the Old Testament of the Bible, especially the books of

[61] Joseph Höffner, Der Wettbewerb in der Scholastik, *ORDO Jahrbuch für die Ordnung in Wirtschaft und Gesellschaft,* 1953, Vol. 5, 181–202.

[62] The "School" describes a particular way of thinking, not so much a location. Economic ideas were developed mainly at the University of Coimbra in Portugal. A research project that provides more than 100 texts in Spanish language can be accessed by www.salamca.school (accessed March 19, 2022).

*Moses*, and the New Testament, especially the *Sermon on the Mount*.[63] At several places of his text, he explains:

> . . . Item, who so lends/that he wants to take back better or more/that is a public and damned usury . . .
>
> To the eighteenth. That is/that we shall willingly and gladly lend or borrow/without any expenses and interest . . .
>
> To the twentieth. From this, it follows that all are usurers who give wine, grain, money, and whatever to their neighbors in such a way that they require them to pay interest whether for a year or any other period of time . . . .

The commandment of charity speaks against interest, especially when the rich man demands it from the poor. Interpretations of natural law that make interest appear unjust or interpret the loan contract as a transfer of ownership of money are also used as reasons for the prohibition. Completely excluded is compound interest, which is treated as an expression of sinful greediness. *Luther* does not close his eyes to the fact that situations arise or are deliberately brought about in which interest and its payment occur. However, this may be against the commandments "hessig und feyndselig" (detested and hostile), primarily when enforced by interest usurers and wealthy merchants.

This glimpse of reality allows *Luther* to see that the prohibition of interest virtually calls for many circumventions. More investment opportunities become visible when the money economy displaces the barter economy, and money becomes perceptible as productive investment capital. Thus occur: the annuity purchase (in which, for example, a property is transferred in exchange for the payment of an annuity), the loan in the form of the partnership agreement, the office purchase (in which several investors jointly buy a lucrative church office for a third person, who promises repayment with a share of the future income), the facilitation of profitable transactions, the compensation of damages in the event of late repayment (for which the parties agree to enter into a contract providing for the repayment of the loan in a short time, but both know that this cannot be kept so that if, as expected, the deadline is exceeded, the damage can be established). By secular standards, this may all be acceptable (". . . zinskauff . . . als ein ziemlicher kauff und gelassener handel . . ." (interest as an acceptable purchase and admissible trade), but not by ethical ones. Therefore it is detested and hostile. Opportunity gains, risks, or enabling a trade transaction may also be approved according to secular standards. However, even then, it should be noted that usury is practiced at the least when the interest rate exceeds 6%.[64]

> On the other hand, it happens/that the buyer and the seller both need their part/Therefore neither are able to lend, nor credit/But have to make do with bills of exchange/If now this happens to violate the law/That one gives on top of 4, 5, 6 guilders/can be accepted/But fear of God should always be remembered . . .

[63] It is occasionally pointed out that *Calvin* derives permission to charge interest precisely from the *Sermon on the Mount.*

[64] Martinus Luther, *Von Kauffshandlung und Wucher*, Wittemberg 1524 (reprint Düsseldorf 1987).

Those who take more are to be considered as robbers and usurers, especially when church servants make such demands.

The views of the inadmissibility of interest are in many cases over-arched, firstly, by the question of whether this extends only to fellow believers, and secondly, by the practical necessity of secular and ecclesiastical rulers to expand power using borrowed capital. The first over-arching leads to the view that Christians in Central Europe should largely stay out of money transactions, leaving them to the Jews. However, this is not generally practiced. The term "high finance" has been used to describe the political and economic-political, primarily informal, influence of Christian and Jewish entrepreneurs alike, documented since the thirteenth century. *"High finance pursues its goals by all means of economic competition, including promising technical, intellectual, and organizational innovations. Their economic and political involvement is often very risky, but the risks are systematically mitigated by foresight and insider information, which effect the major processes."*[65] It also happens that spiritual leaders are in debt to their Christian subjects. For example, the parents of *Nicholas of Cusa* (1401–1464), who preached against the Jews, are themselves engaged in money-lending.[66] Jews as lenders take high risks in such transactions. For this reason alone, it is not surprising when city councils—also in their own interest—issue decrees limiting interest rates. Limitations to 25%, 10%, or 5% p. a. provide indications of the level that the previously agreed interest rates could assume. When, for example, the Papal legate *Nicholas of Cusa* exerted influence on the respective sovereigns in decrees on the Jews to make them recognizable by their clothing (since the IV Lateran Council in 1215, a Jewish hat and a yellow patch on their clothing), to forbid their monetary transactions, to oblige them to work as craftsmen (which had previously been forbidden since 1215), or to expel them from cities, then views based on religious doctrines were spread. In part, cities and bishops defended themselves against this by interpellation to the emperor and the pope, who revoked the decrees proclaimed in 1451 as early as 1453 at least with respect to individual dominions. The city councils had no interest in seeing the Jews being expelled and then settling in nearby places as competitors, which would reduce their urban tax revenues, or alternatively by taking up work letting them become new competitors within the city to the already often powerful craftsmen in their guild

[65] Wolfgang von Stromer, Hochfinanz, Wirtschaft und Politik im Mittelalter. In: Friedhelm Burgard et al, *Hochfinanz im Westen des Reiches 1150–1500,* Trier 1996, 1–16, here 15 et seq.

[66] Karl-Heinz Zaunmüller, *Nikolaus von Cues und die Juden. Zur Stellung der Juden in der christlichen Gesellschaft um die Mitte des 15. Jahrhunderts in den deutschen Landen.* Diss. Univ. Trier (2001), Internet version 2005 (retrieved Oktober 8, 2009), 122.

organization or the merchants.[67] This led to political anger.[68] Another factor contributing to the confusion of the situation was that it was not always clear whose political followers the Jews settled in a town were.

The term "usury" is not used to refer to exceptionally high interest rates alone, but in part, to the quite usual rate of interest because there is no difference between the terms in Latin. Most definitely, however, compound interest is considered usury in its proper meaning. This is regularly forbidden altogether.

## 2.4 Summarizing Observations

The development of management ideas and economic concepts in Europe is astonishing. The ideas originated from authors who were not educated as economists or managers. The mind-setters were philosophers in Greece, influential political minds in the Roman Empire, theologians in Central Europa during the Middle Ages. However, it was quite common during these centenaries and further on that knowledgeable people were not specialized in a specific discipline. Universities were started in the Middle Ages in Europe but, apparently, did not offer systematic studies of business economics.

Observations of nature, experiences made in managing estates, hermeneutical analyses of earlier literature, and holy scriptures, in particular, are the primary sources for ideas that influence management, at least as far as they are documented. This leads to another surprise. Leaving issues like the functions of money and the mainstream non-acceptability of charging interest aside, the agricultural estate is the object of management. Although employing comparatively many people per establishment, commerce and manufacturing are not treated in the literature.

Depending on the economic environment from which particular experiences could be gained, authors arrived at diverging conclusions on basic subjects like pricing or the charging of interest rates. International trade and "big money" let interest appear to be necessary and acceptable, as illustrated in publications of the School of Salamanca; small and medium-sized, family-dominated business activities and the governance systems of local guilds seem to have reminded authors of credits as a mutual moral or charitable obligation to help out in difficult times, and consequently a ban on charging interest to avoid opportunistic behavior. If this does not help, spiritual or worldly authorities are asked to pass regulations that,

[67] The council of the city of Frankfurt expresses in 1444 that, should the Jews "...become usurers and start as merchants, they would have more advantage from this than the Christians": Quoted from: Franz-Josef Ziwes, Zum jüdischen Kapitalmarkt im spätmittelalterlichen Koblenz. In: Friedhelm Burgard et al, *Hochfinanz im Westen des Reiches 1150–1500,* Trier 1996, 49–74, here 73.

[68] Karl-Heinz Zaunmüller, *Nikolaus von Cues und die Juden. Zur Stellung der Juden in der christlichen Gesellschaft um die Mitte des 15. Jahrhunderts in den deutschen Landen*. Diss. Univ. Trier (2001), Internet version 2005 (retrieved 08.10.2009), esp. 177 et seq.

however, are stronger based on customs than on logical reasoning. Frequently, such regulations survive for only short periods or are neglected altogether because they cannot be enforced. Religion, political and business interests are in constant conflicts.[69]

Although commercial contacts to the Near and the Far East existed, it does not appear that the ideas developed there had a chance to travel to Europe at large and, if so as in Spain, be considered immediately to contribute to the development of management ideas. The diffusion of better concepts, like the use of the "Indian" numerals, took a long time. Business principles were treated as business secrets that should never be published. Breaking up this habit earned *Luca Pacioli* the fame of being the author who first published double-entry bookkeeping as practiced for longer time by Italian merchants and public administrations.

At the end of the Middle Ages, major business activities had become highly complex, dealing with regionally different currencies, measures of all sorts, languages, habits, etc. Thus, introducing more logic into operations, developing traces of strategies, and reducing business risks by publishing rules and regulations became an urgent need for the time to come.

[69] Jacques Le Goffe, *La bourse et la vie. Économie et religion au Moyen Âge*. Paris 1986.

# Chapter 3
# The Age of Enlightenment and Beyond in Europe


**Abstract** During the Age of Enlightenment rationality and logic became dominant over natural law and traditional ethics in supporting management ideas. For example, induction from experiments broadened methodologies, and compound interest was logically explained and made applicable by providing formulas for geometric series and tabulation of logarithms. The enormous complexities of a merchant's business and banking are written down in encompassing books to advise managers. This makes it clear that management can be taught to some degree, which gives rise to a call for management professorships at universities.

Not least the religious disputes in Central Europe lead to a wave of university and academy foundations; navigators and astronomers expand knowledge of the world; humanism gains influence: the intellectual world changes a great deal.[1] With the Enlightenment, rationality gradually overcomes reasonings that appear to be based on natural law or theology. "*The mainstream of the Enlightenment, especially in Germany, strolled along middle paths: between the Scylla of the superstitious, who ... valued the 'light of sound reason' too low, and the Charybdis of the atheists, who 'wanted to stretch reason too high.'*"[2] Of course, this positioning encourages disputes.

[1] In summary: Walter Rüegg, ed., *Geschichte der Universität in Europa. V*ol. II: *Von der Reformation bis zur französischen Revolution* (1500–1800), München (Munich) 1996.

[2] Steffen Martus, Aufklärung. *Das deutsche 18. Jahrhundert - ein Epochenbild*, 2nd ed., Berlin 2015, 401, referring to the jurist and philosopher Christian Thomasius (1655–1728).



K. Brockhoff, *Management Ideas*, Contributions to Management Science,
https://doi.org/10.1007/978-3-031-09962-5_3

## 3.1 Methodological Advancement: Induction from Experiments

1. *Francis Bacon* (1561–1626) should be remembered as a very early representative of the age of Enlightenment (l'âge de la lumière). Other than the dialectic discourse that *Plato* had promoted to arrive at knowledge or conscience, he propagates the procedure of *induction* and the *experiment* as the better methods. These are meant to explore natural or engineering phenomena. Nevertheless, the proposed methods may also be seen as a stimulus for a new approach to knowledge acquisition in other disciplines. For business administration, two aspects should be mentioned here.

   First, in the third "aphorism" of his work "*Novum organum*" of 1620, it is postulated that human knowledge and human power fall together. If a cause is unknown, an effect cannot be explained.[3] From this passage can be derived the oft-quoted phrase "*knowledge is power*." It is not always taken into account that it is, first of all, a matter of power vis-à-vis nature. It is also the passage from which one can understand the importance of the cause-effect relationships for the acquisition of knowledge. If business studies go beyond hermeneutic understanding or dialectical discourse to provide bases for action, they must seek such relationships. The interrelation of power and knowledge is again addressed much later, when the knowledge of a specific language and the design of rules to govern certain processes are identified as sources of power. In particular, accounting knowledge is interpreted as a source of power. "*The Foucauldian view of power . . . is construed as an 'omnipresent web of relations,' a network that operates both from below as top-down . . . Power in the Foucauldian sense allows for the articulation of normalizing standards that provide individuals with the opportunity to increase their own well-being . . . Much Foucauldian history has focused on the development of U. S. cost accounting*."[4]

   Secondly, it is pointed out that *Bacon* aims at a "useful science of principles" without using this term himself. "*He usually helps himself by paralleling usefulness and truth: Admit the one, and so will the other. However, since this is not a coincidence, but is based on construction ... it is fundamental to the understanding of the Baconian philosophy to determine precisely the inner relation of utility and knowledge*."[5] In the disputes with those who criticize business studies

[3] Francis Bacon, Novum organum, here quoted from the edition: J. Spedding/R.L. Ellis/D.D. Heath, eds, *The Works of Francis Bacon,* Vol. I, London 1858 (Reprint: Stuttgart-Bad Cannstadt 1963). Francis Bacon, Meditationes Sacrae, Ibid., Vol. VII, London 1861, 231–254, 253.

[4] Richard K. Fleischmann/Vaughan S. Radcliffe, Divergent streams of accounting history: A review and call for convergence. In: Richard K. Fleischmann/Vaughan S. Radcliffe/Paul A. Shoemaker, *Doing Accounting History. Contributions to the development of accounting thought,* Amsterdam et al. 2003, 1–30, here 15. The quote refers to French philosopher Michel Foucault (*Discipline and Punish,* New York 1977) and omits further references.

[5] Wolfgang Krohn, *Francis Bacon,* München (Munich) 1987, 82 et seq.

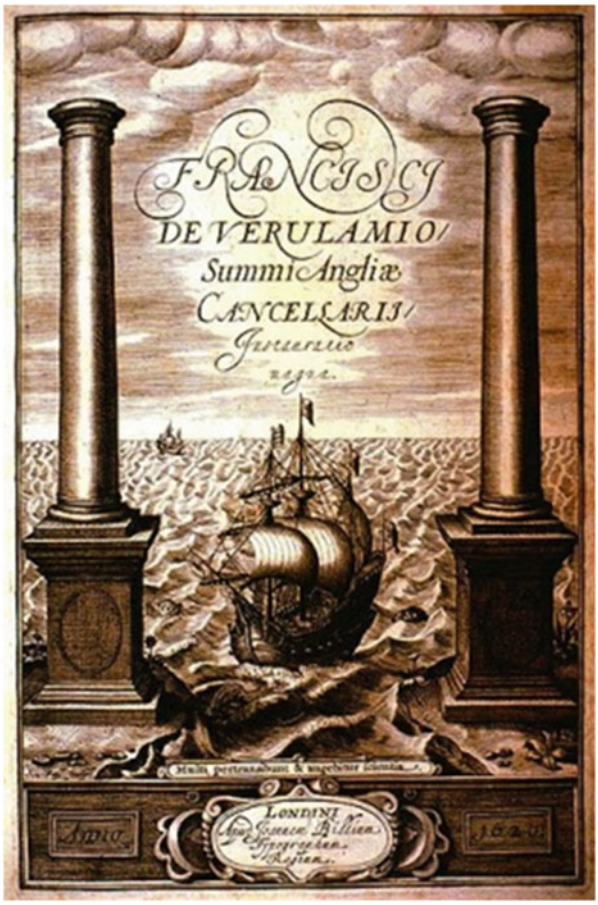


**Fig. 3.1** Frontispiece of *Bacon*'s "*Instauratio Magna*," 1620

because they strive for utility rather than truth, this also plays an important role, namely not to see usefulness and truth as opposites or accept their coincidence as a matter of chance only.

2. *Bacon's* "*Novum Organum*" is the second part of a book published under the title "*Instauratio Magna*" (Fig. 3.1). This has a very well-known copperplate engraving as its frontispiece before the title page, in which the methodological issues are already addressed allegorically.[6] Let us begin with the eye-catching columns. Two misjudgments, valuing "*what has been achieved too high, what can be achieved too low—he* (Bacon, K. B.) *calls the 'fateful pillars of science' ... beyond which men have as yet neither the desire nor the hope to strive*."[7] In

[6] Alternatively, the picture refers to an economic-political emblematic: Aleida Assmann, Schwelle zwischen alter und neuer Welt: Francis Bacon's Frontispiz zur Instauratio Magna, in: Christoph Markschies et al., eds, *Atlas der Weltbilder,* Berlin 2011, 213–220.

[7] Wolfgang Krohn, *Francis Bacon,* München (Munich) 1987, 64.

somewhat more general terms, this juxtaposes hostility to novelty and indicates that the ship depicted is endangered by the cliffs in the foreground by experimentation without scientific law or plan. The cliffs stand for traditional university disciplines and their methodology, especially the dialectics. In *Bacon*'s view, they produce no genuine innovations.[8] Well-planned experiments point at a way to knowledge generation.

Of further interest is a model of a research institution that is charged with experimentally increasing knowledge.[9] Twenty such institutions are foreseen for a utopian island state. Each institute is organized by functions performed; it collects knowledge from abroad without disseminating it beyond the state's frontiers and provides internal supervision and control. Nine functions or specializations of the scientists are described:

- Mercadores lucis (merchants of light) collect books and descriptions of experiments from abroad.
- Depredatores and veneratores collect all external experiments in detail.
- Fossores sive operatores in mineris are those who perform new experiments.
- Divisores present the experimental results in an easily understood way, such as in tables and figures.
- Euergetas supervise experiments, extract knowledge for practical use and suggest further developments.
- Lampadas indicate the possibilities for entirely new experiments.
- Insitores analyze the results of the lampadas and report on their findings.
- Interpretes naturae discuss results with all institution members and summarize the findings in the form of axioms and aphorisms.
- All members together decide on whether results should be made public or kept secret, even before the own government. They travel the island state and report on the publishable results.

Much later, division of labor in mental processes was explained.[10] Even today, larger laboratories in science and engineering can be organized by similar principles beyond the level of individual projects.[11] Moreover, even in business research, functional specializations are observed, like data collection, applying specific methodologies, etc. In part, this explains why today, many research articles have several authors, which in earlier years was an exception. Pricing theory, behavioral finance, information, and communication are sample fields from business administration, where experiments have become standard approaches for generating new knowledge. These procedures have in part benefitted not only from interaction with

[8] Ibid., 66.

[9] Franciscus Baconum, *Nova Atlantis,* Londini (London) 1638.

[10] Charles Babbage, *On Machinery and Manufactures*, London 1832, 153.

[11] Klaus Brockhoff, A utopian view of R&D functions, *R&D Management,* 2003, Vol. 33, 31–36.

**Fig. 3.2** Gottfried Wilhelm Leibniz, 1646–1716. Source: Berlin Brandenburg Academy of Sciences and Humanities

computers but also from the development of medical equipment, like apparatus for the detection of eye movements or MRT machines. Furthermore, *Bacon* foresees knowledge transfer and industrial espionage. Thus, the work reaches far beyond its time and proposes a new way to generate knowledge.

## 3.2 The Problem of Compound Interest Solved by Logic

During the sixteenth century, the position on the prohibition of interest was already further softened considerably by the recourse to Roman law, new interpretations of the Bible, and the writings of the School of Salamanca (Sect. 2.3 (5)). Various imperial decrees from 1500 onward or an imperial police regulation of 1530 declare 5% as the upper limit for interest, and in 1638, at the latest, *Claudius Salmasius (Claude de Saumaise,* 1588–1653) argues to permit interest in general.[12] Taking into account newly arising arguments, laws generally limiting interest are also subsequently repealed. Practically, the interest problem is no longer one.

The ban on compound interest had not yet been lifted.[13] In this regard, *Gottfried Wilhelm Leibniz* (1646–1716) achieves a breakthrough (Fig. 3.2). He had to work his way to this step by step. In the various versions of his manuscripts "*De interusurio*" ("On Intermediate Interest," 1680–1683), the conventional position is held at first:

> *But is perhaps the intervening interest to be computed not by simple interest, but by compound interest ("anatocismum computandum")? I think that computation by compound interest cannot be approved. For, according to the law, compound interest, and with reasons, is forbidden; and the affairs of most people in most places do not behave in such*

[12] Claudius Salmasius, *De usuris,* Leiden 1638.

[13] By the way, it is still valid today in Germany in C2C loans.

> *a way as to be able to acquire again from the interest of the first year other interest according to the same proportion, and therefore the calculation based on the principle of compound interest is neither in the sense of the legislature nor of the matter itself.*[14]

In a paper written almost at the same time, *Leibniz* arrives at a different solution ("*Juristisch-mathematische Betrachtung darüber, wie viel mehr jemand fordert, wie man annimmt, der vorzeitig fordert, oder über die Kürzung bei vorzeitigem Empfang, umgangssprachlich Rabatt*"). He constructs the case of a specific debt due after 10 years, which will be paid back prematurely by both parties' consent. Thus the question arises as to the amount of the discount to be applied if, in principle, a uniform debit and credit interest of 5% is assumed (which implies a perfect capital market). The complex discussion of the payments initiated on the part of debtor and creditor, respectively, and their investment possibilities of the money received earlier on the one hand, and the interest saved on the other hand up to the original horizon of the transaction leads to the recognition that compound interest is to be charged. Three methodical elements come to *Leibniz*'s aid in order to abbreviate the seemingly complicated calculations and to give them the necessary, verifiable certainty: (a) calculating with logarithms, (b) the introduction of a general mathematical symbolics, (c) discovery and application of the formulae for infinite and finite geometrical series and their sums. Without further proof, he states:

> *Let* $z$ *be the number of years,* $a$ *the amount of money due after these years, and let the rate of interest be expressed by the letter* $v$*, in such a way that, if the interest allowed is one-twentieth of a coin or five per hundred, the letter* $v$ *means 20. This being provided, after deducting the reduction from the sum of money* $a$ *on account of the receipt of the sum due to the early repayment* $z$ *years, there will remain* $a(v/(v+1))^z$*. . . . To avoid cumbersome multiplications, applying logarithms will be useful ...*[15]

*Leibniz* position is maintained in three further versions of the paper and further manuscripts on interim interest. He arrives at the present value formula as we know and apply it today. A major breakthrough has been achieved. The present value formula is found: A person who expects to receive 100 monetary units in 10 years can value this credit at 61.39 monetary units today, assuming a riskless investment at a 5% interest rate. The investment calculations from then on can be put on a new basis. It is all the more astonishing that static procedures of investment valuation, such as the comparison of costs or the determination of the payback period, dominated not only in practice but also in large parts of the literature until the 1960s (Sect. 10.2.4).

[14] Gottfried Wilhelm Leibniz, Über den zwischenzeitlichen Zins, 1st version. In: Eberhard Knobloch/J.-Matthias Graf von der Schulenburg, ed., *Hauptschriften zur Versicherungs- und Finanzmathematik,* Berlin 2000, 60–71, here 69.

[15] Gottfried Wilhelm Leibniz, Juristisch-mathematische Betrachtung, 1st version. In: Eberhard Knobloch/J.-Matthias Graf von der Schulenburg, eds, *Hauptschriften zur Versicherungs- und Finanzmathematik,* Berlin 2000, 106–113, here 112f.

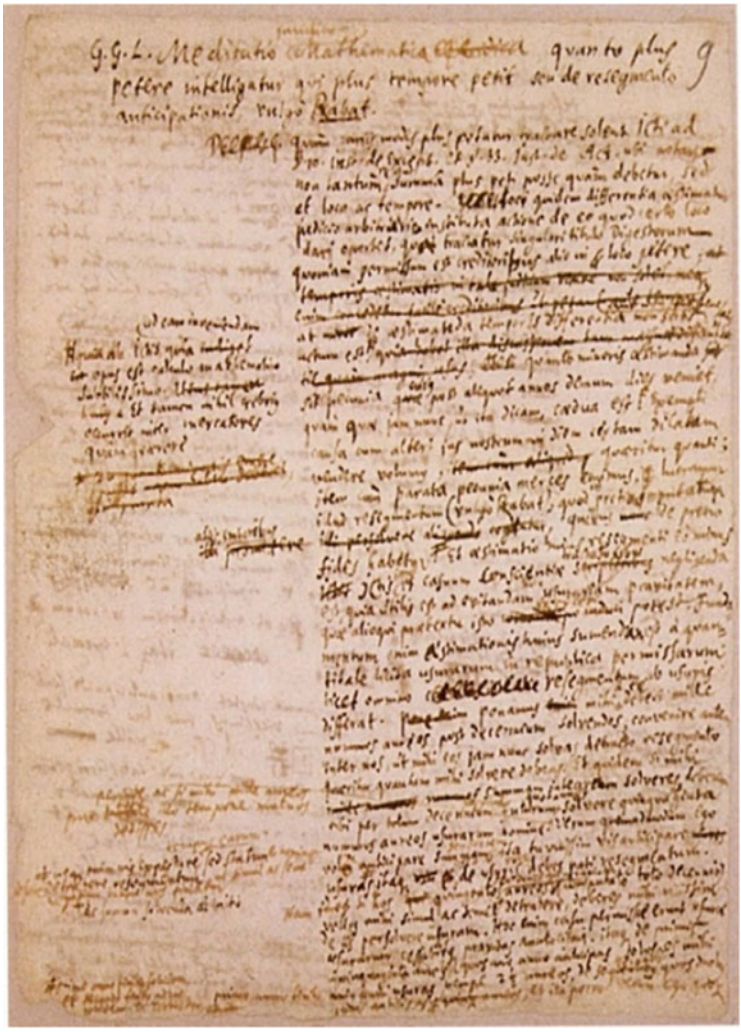

**Fig. 3.3** Sample page from *Leibniz*' manuscript of the Meditatio . . . . Source: Lower Saxony State Library, Hannover LH 5,1; 95

At this point, an impression of how difficult it is to create a readable text from *Leibniz's* handwritten remarks (and something similar applies to many other scientists), to grasp the chronological order of remarks and additions, and finally to provide a translation that reflects what is meant by the author must not be missed. To illustrate, a manuscript page of *Leibniz* is reproduced in Fig. 3.3.

## 3.3 Comprehensive Books for Merchants

This proof of the necessity of compound interest is achieved in the middle of a period marked by the appearance of comprehensive textbooks into which the new knowledge can be integrated. They spread knowledge for the merchant, embedded in mercantilist views of the economy. Thus business knowledge beyond bookkeeping emerges into the public domain, that is, out of the shadows of secrecy. This is to be expected in the Age of Enlightenment.

As mentioned above, double-entry bookkeeping, in particular, was presented since the late fifteenth century in several European countries by leading mathematicians of the time and then became the subject of teaching in special schools of commerce. Early examples of accounting literature in European countries include[16]:

- *Jan Ympyn Christoffels*, Nieuwe Instructie ende dewijs der looffelijcker consten des rekenboecks ..., Antwerp 1543.
- *Hugh Oldcastle*, A Profitable Treatyce called the Instrument or Boke to learne to knowe the good order of the keepying of the famouse reconynge called in Latyn, Dare and Habdare, or in Englyshe, Debitor and Creditor, London 1543 (reprinted 1588).
- *Wolfgang Schweicker*, Zwifach Buchhalten Sampt seine Giornal, desselben Beschluss auch Rechnung zu thun . . ., Nürnberg (Nuremberg) 1549.

In addition to accounting, the quality assessment of goods, the conversion of measurements, weights, and currencies are the basis for successful business management. Trade-relevant information is still predominantly conveyed through written correspondence before newspapers also become important. In order to facilitate correspondence and to be able to use it as evidence in disputes, collections of sample letters and forms appear.[17] It is noticeable that a considerable number of works were devoted to warning against deception and the manipulation of books, merchandise, and currency.[18] Honesty in trade was apparently not widespread.

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[16] These three works are also available and digitized in the Rare Books Library of the Institute of Chartered Accountants of England and Wales (www.litcat.icaew.com, accessed March 7, 2021).

[17] Mauro Fortunati, *Scritture e prova: I libri di commercio nel diritto medieval e moderna,* Roma (Rome) 1996, here 22; Roger Chartier, Secrétaires for the People? Model Letters of the Ancient Régime: Between Court Literature and Popular Chapbooks. In: Roger Chartier/Alain Boureau/Cécil Dauphin, eds., *Correspondence - Models of Letters - Writing from the Middle Ages to the Nineteenth Century,* Princeton/NJ 1997, 59–111.

[18] St. R. Acxtelmeier, *Hokus-Pokeria, Oder die Verfälschungen der Waaren, im Handel Und Wandel, denen Manufacturen, Gewerken, Kramereyen, Wirtschaften . . . zu einer Nachricht und Warnung mitgetheilet, (about) 1704. J. G.* Aurbach, *Mercator Fallitus: sive der Bankerottierer, axiomatice & per causas in triplici statu delineatus,* Lipsiae/Francofurti (Leipzig/Franfurt) 1685; J. Möller [Möllern], *Nützlicher Diskurß von Banqverutiern/Falliten und verdorbenen Kaufleuten...*, Franckfurt (Frankfurt)/ Leipzig 1693; J. Möller, *Gründlicher Bericht von der Banckerottire Falliten und verdorbenen Kaufleute Leben und Wandel auch deren Unterscheid und Bestraffung...*, Franckfurt (Frankfurt)/ Leipzig 1714; J. Verom, J. [Verus], *Discurs von verdorbenen Kaufleuten/ Bancorottirern und Falliten...*, Franckfurt (Frankfurt)/Leipzig 1669.


**Fig. 3.4** Frontispiece of a book on fraud and currency manipulation. Source: Justino Verom, *Discurs von verdorbenen Kaufleuten/ Bancorottirern und Falliten,. . .* Franckfurt/ Leipzig 1669, frontispiece

A clear message is communicated by the frontispiece of *Justino Verom'*s treaty on business failure, fraud, and currency manipulation (Fig. 3.4).[19]

We look into the interior of a building and notice two different scenes. The ribbon on the top carries the headlines of the book's three main parts. The text at the bottom says: "When revenues are greater than expenditures and books are correctly kept, the merchant shown in this picture stands in good posture, although he might be threatened by floods or fire." The last remark points at unforeseeable uncertainties. However, these uncertainties might be mastered by reserves. In fact, in the foreground, we see two people filling a bucket that might contain the reserves. More packaged merchandise is seen. The merchant at right is presented a letter, and with his book opened and the writing equipment ready, he appears prepared to react to the

[19] Justino Verom, *Discurs von verdorbenen Kaufleuten/Bancorottirern und Falliten,* Franckfurt/ Leipzig 1669.

news and record the numbers. In the middle ground, a woman counts coins and packages these while new money appears to be arriving. She might also be checking the validity of the coins. This part of the picture signals good business order and wealth. On the contrary, in the back, two people are seen. The man is somewhat lethargic. The woman has raised her arms in despair. This couple may have experienced the bad manners of merchants.

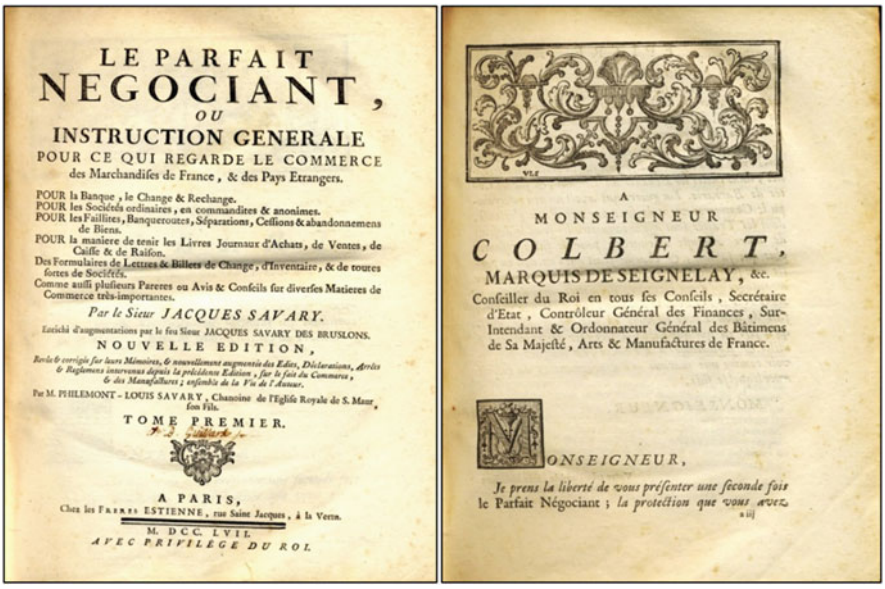
An indication of the development of the literature offered to merchants is the stock catalog of a bookseller from 1824 with (partly very specialized) about 1200 titles published since 1700.[20] Therefore, it seems expedient to present the various special fields of merchants' literature collectively in comprehensive works. This is observed from about the second half of the seventeenth century. Frequently, five works are highlighted that achieve the enlightenment in an imposing way and strive to present the complete knowledge for a successful merchant:

- *Giovanni Domenico Peri* (1584–1639), Il Negotiante, written in 1636, published from 1658 onward
- *Jacques Savary* (1622–1690), Le parfait négotiant..., Paris 1675 (2nd A., Fig. 3.4)
- *P(aul) J(acob) Marperger* (1656–1730), Nothwendig und nützliche Fragen über die Kauffmannschafft..., Leipzig/Flensburg 1714
- *Carl G. Ludovici* (1707–1778), Grundriß eines vollständigen Kaufmanns-Systems, Leipzig 1756
- *Johann Michael Leuchs* (1763–1836), System des Handels, Nürnberg (Nuremberg) 1804

The works mentioned have been published several times, and some of them have also been translated. Most authors have also published additional works, including encyclopedia. The word "Handlung" treated in these books signals a continuation of the management of households in a broad sense, extending primarily to a merchant's business. The term is part of the later "Handlungswissenschaft" or "Handelswissenschaft," which in English translates to "business administration." In order to characterize the nature of the works, they are briefly introduced.

1. Referring to a variety of ancient writers, *Peri* first establishes the value of trade to society and the origins of merchants. Instructions for composing merchant letters follow. Next, the personal characteristics and some leadership principles to be observed by each successful principal of a household are addressed. This includes the preservation of business secrets and the warning against avarice. A great deal of space is then taken up with explaining exchange transactions, trade customs in various trade fair locations, and finally, bookkeeping. A striking stylistic element

[20] Theodor Christian Friedrich Enslin, ed., *Bibliothek der Handlungswissenschaft oder Verzeichnis der vom Jahre 1700 bis zur Mitte des Jahres 1824 in Deutschland erschienenen Bücher über alle Theile der Handlungskunde und deren Hilfswissenschaften...,* Berlin/Landsberg a. d. W. 1824 (reprint amazon.co.uk, no year given). Samuel Gottlob Meisner, *Grundriß der Privathandlungswissenschaft . . .,* Breslau 1804, presents 351 books that appeared between 1748 and 1803 in four languages and that are not "bad or mediocre" (p. XI).



LE PARFAIT
NEGOCIANT,
OU
INSTRUCTION GENERALE
POUR CE QUI REGARDE LE COMMERCE
des Marchandises de France, & des Pays Etrangers.

POUR la Banque, le Change & Rechange.
POUR les Sociétés ordinaires, en commandites & anonimes.
POUR les Faillites, Banqueroutes, Séparations, Cessions & abandonnemens de Biens.
POUR la maniere de tenir les Livres Journaux d'Achats, de Ventes, de Caisse & de Raison.
Des Formulaires de Lettres & Billets de Change, d'Inventaire, & de toutes sortes de Sociétés.
Comme auſſi pluſieurs Pareres ou Avis & Conſeils ſur diverſes Matieres de Commerce très-importantes.

Par le Sieur JACQUES SAVARY.

Enrichi d'augmentations par le feu Sieur JACQUES SAVARY DES BRUSLONS.

NOUVELLE EDITION,

Revûe & corrigée ſur leurs Mémoires, & nouvellement augmentée des Edits, Déclarations, Arrêts & Reglemens intervenus depuis la précédente Edition, ſur le fait du Commerce, & des Manufactures; enſemble de la Vie de l'Auteur.

Par M. PHILEMONT-LOUIS SAVARY, Chanoine de l'Egliſe Royale de S. Maur, ſon Fils.

TOME PREMIER.

A PARIS,
Chez les Freres ESTIENNE, rue Saint Jacques, à la Vertu.

M. DCC. LVII.
AVEC PRIVILEGE DU ROI.

A
MONSEIGNEUR
COLBERT,
MARQUIS DE SEIGNELAY, &c.
Conſeiller du Roi en tous ſes Conſeils, Secrétaire d'Etat, Contrôleur Général des Finances, Surintendant & Ordonnateur Général des Bâtimens de Sa Majeſté, Arts & Manufactures de France.

MONSEIGNEUR,

Je prens la liberté de vous préſenter une ſeconde fois le Parfait Négociant; la protection que vous avez

**Fig. 3.5** Title page and first page with the dedication of the new edition of the "*Parfait Négociant*" *of 1757*

is the frequent use of proverbs that were apparently common knowledge at the time.[21]

Of the comprehensive compilations of merchant knowledge mentioned here, *Peri's* presents the subject matter based on experience, most strongly in a narrative tone and relatively non-technical.

2. *Jacques Savary* worked as a merchant until 1658, became partner in a copper trade, and finally was appointed to preside over important state institutions. His book draws on this wealth of experience. So again, there is no theoretical system as a basis. He considers an excellent legal system useful for the economy. *Savary* influenced the French commercial code that came into being under *Jean-Baptiste Colbert* (1619–1683).[22] *Le parfait négotiant (The prefect merchant)* is dedicated to him (Fig. 3.5). It is divided into two books with several chapters.[23]

[21] Gio(vanni) Domenico Peri, *Il Negotiante,* Venetia (Venice) 1662. A German translation is lacking because of the circumstances of the time and the prolixity of the author, as Eduard Weber notes: *Literaturgeschichte der Handelsbetriebslehre*, Tübingen 1914, 14 (Supplement XLIX to *Zeitschrift für die gesamte Staatswissenschaft*).

[22] Under Louis XIV, he was finance minister and chief building inspector.

[23] In the following, the "new edition" is followed: Jacques Savary, *Le parfait négotiant ou instruction générale pour ce qui regarde le commerce des marchandises de France, & des Pays Etrangers,* Paris 1757 (Published by Jacques Savary des Bruslons). The first edition can be found at: www.gallica.bnf.fr/ask:/12148/btv1b86207898.r:savary+parfait+négotiant.langFR (accessed November 24, 2014).

Trade is necessary and valuable, the first book argues, mainly because of its arbitrage function. It is disrupted by corporate failures caused by ignorance, imprudence, and over-ambition. Attention to the law, recommendations given in the book itself, and high ethical standards could collectively counteract business failure. The account gives the reader advice on career choice and progression in a merchant's profession. Many details are covered, such as currency conversions and quality assessment of merchandise. Those who follow the advice can acquire wealth honestly and relatively safely. Therefore, the profession of a merchant should also be accessible and attractive to the nobility.[24] Monetary transactions include the bill of exchange, bill protest, and clearing. Sample forms are provided for these purposes. Accounting includes arranging the inventory, the register of expenses and receipts, as well as valuation rules and rules for correct bookkeeping.

The second book presents a description of various legal forms and rules of conduct for partners in companies. A clear separation of private and business assets in the accounting system prevents disputes between partners. A balance sheet for the determination of profits of the going concern can be found as well as a balance sheet for the case of insolvency. Different types of trade and manufacture are explained. Foreign trade, the commitment of the citizens to trade in such places, the so-called triangular trade between Europe, Africa, and America are described.[25] The latter is surprising because of the acceptance of a rule-bound slave trade, although high ethical and moral standards had been formulated before and presented as the norm of behavior.[26] Insurance, forwarding, and brokering are presented as auxiliary functions to trade.

Beyond more-or-less commonplace presentations of business practices and rules to be observed, *Savary* distinguishes himself from other authors of the time by important strategic advice. Two examples are presented:

(a) Long-term orientation of a merchant and achieving customer loyalty are very important. "*It is not enough for a merchant to have goods in the store. It is important to run the business with a long-term perspective, to build a great reputation, which is achieved by always offering nice and good merchandise, and at a good price, and to stay to these manners over a long time, without which a merchant cannot achieve anything.*"[27]

[24] So also: Anonymus (Gabriel François), *La Noblesse Commerçante,* 1756 (www.MDZ.de, accessed October 2, 2014).

[25] This type of trade in cloth or other goods from Europe to Africa, with slaves to America and sugar to Europe, made *Heinrich Carl (Count) Schimmelmann* very wealthy for a time treasurer to the Danish king.

[26] This is even more remarkable because 200 years earlier Pope Paul III (in office from1534 to1579) had issued the papal bull *Sublimis Deus* (June 2, 1537). The bull spoke against suppressing indigenous people and slavery, as long as people were baptized. This interdiction had little effect.

[27] Jacques Savary, *Le parfait négotiant ou instruction générale pour ce qui regarde le commerce des marchandises de France, & des Pays Etrangers,* Paris 1757 (Published by Jacques Savary des Bruslons), Book 1, 132.

(b) The classification of business types and their consequences for running the business is noteworthy: "*It is one very important thing to establish a manufacturing business. If it is not conducted with prudence and judgment and the necessary precautions, it does not mean less than the ruin of the entrepreneur. This they should well notice before their engagement. There are three things to observe. The first is whether one wants to copy some foreign production. The second, this is a new production of a sort that one wants to invent. The third is a production already established, their products having a good market in the kingdom or foreign countries.*"[28] It is remarkable that manufacturers are explicitly addressed now, while earlier literature primarily covered merchants and their business. Furthermore, the explicit differentiation between innovative and imitative business models is very interesting. The author continues by giving differentiated advice to the "entrepreneurs" according to the business model they have chosen. The first model addresses the so-called "fast second," while the third talks of entering a standard goods market. The second represents the "promotor" (Sect. 5.2.4).

*Savary* laid the groundwork for many subsequent publications, as evidenced by sometimes downright reverential references by their authors. The work also features a full-page illustration as a frontispiece in several of its editions to signal the main contents to expect: Wholesale, retail and long-distance trade, logistics, the contracting of a sale under witnesses; in the French edition, the inscription in a tablecloth leaves no doubt which of the persons depicted is considered the perfect merchant (Fig. 3.6). He looks at a note presented to him with the left hand, a clear indication to make him suspicious. The illustrated frontispiece was an important piece of marketing because these days, books were sold unbound and untrimmed. They could not be inspected by skimming through the pages.[29]

3. Selected publications by *Marperger* will be treated in the following chapter. He alone is reported to have authored some 70 books.
4. We now turn to the work of *Carl Günther Ludovici* (who describes himself as a full professor of the theory of reason at the "high school" in Leipzig, a member of the Prussian Academy of Sciences in Berlin and of the Society of "Oeconomick (economics, K. B.), the liberal arts and the German language" in Leipzig. It is interesting to learn of the existence of an association that cultivates economics, if only among other disciplines. It indicates the first steps toward a disciplinary institutionalization, which – as will be discussed later – is one of the indicators of a field as a science.

Already in the preface, the author points out that "*between those rules how to govern the economy of a whole country, and those teachings how to govern a*

[28] Ibid., Book 2, 78 et seq.

[29] Klaus Brockhoff, Signaling by Frontispieces in Baroque Merchant Books, *Archiv für die Geschichte des Buchwesens,* 2016, Vol. 71, 23–41.


**Fig. 3.6** Frontispiece of *Savary*'s Le Parfait Négotiant, 1675. Source: www.gallica.fr, accessed October 11, 2021

*private business, a difference has to be made in order to achieve the intended purpose*."[30] The latter must be systematically presented and taught. The author undertakes this on 622 pages (in the edition consulted) with great detail and historical understanding based on an overarching system. This systematic approach is a major contribution.

Everything a merchant should know is called a commercial, scientific system. It consists of the main part (§§ 1 through 7), necessary and supplementary auxiliary commercial sciences (§ 8). The breadth of knowledge deemed useful is particularly impressive. The ideal of an all-around educated merchant is thus conveyed. Occasionally, it is pointed out that one can also be successful if one knows when an expert, for example, a lawyer, is to be consulted in an advisory capacity or when he should act on behalf of the merchant. Beyond this, *Ludovici*

[30] Carl Günther Ludovici, *Grundriß eines kompletten Kaufmanns-Systems, nebst den Anfangsgründen der Handlungswissenschaft, und angehängter kurzer Geschichte der Handlung von Europa, auch bis in die anderen Welttheile,* 2nd ed., Leipzig 1768, no page numbering.

recommends travel, learning foreign languages, regular newspaper reading, and acquiring knowledge of history.

The main part of commercial sciences is divided into three sections: Knowledge of the items traded, basic commercial science, and accounting (§§ 3, 4, and 5). Explanatory notes illustrate each case. Several chapters (§§ 26 et seq.) are devoted to the various "prices" and "values," where prices are related to material things, while values to relate to human work. This is not strictly followed through. "Usefulness" and "rarity" of goods are identified as determining prices. Usefulness or benefit can be consumptive or arise from investments, the latter in the sense of being fruitful.

The auxiliary sciences guide businessmen. The necessary "sciences" are: arithmetic (§ 9), ability to write business letters (§§ 10, 15, 18), cryptography (§ 17), knowledge of coinage (§ 11), all sorts of measures used at home and abroad (§ 12), commercial geography (§ 13), commercial law (§§ 14, 19) and the art to establish trademarks (§ 16). This catalog comprises certain parts of general business studies, as they are taught until these days in the education of apprentices (in countries where this is a standard part of an educational system, as in Germany) and even bachelor programs in universities. Other parts are covered by college-level schooling, which was not available in the days of the author.

Further auxiliary sciences should provide knowledge on state governance (§§ 2, 20), heraldry (§ 20), natural sciences, mechanics, cubic measures, technical drawing (§ 20), rational calculus of probabilities (§ 22), and the arts (§ 20).[31] Probability theory originates from the private interest of finding rational strategies for gambling.[32]

The enormous breadth of this program cannot become effective unless the merchant can draw his own conclusions guided by "diligent contemplation" and "good speculation." "*...as a merchant in his commercial transactions and occurring situations (for example, whether this or that exchange rate, the price of this or that commodity, will presumably rise or fall) considers the reasons for and against, and only then takes his resolution...*".[33]

Mentioning probability theory as an auxiliary science deserves special attention. The merchant may "*...encounter quite some cases concerning profit or loss, all of which he must assess according to the degrees of probability, and for which the rules of the calculus of probability will service him excellently.*"[34] These rules have already been developed for many special cases. The outcome of games, the

[31] A less advanced "system" listing major, auxiliary and supplementary sciences, industry and intermediary studies is: Samuel Gottlob Meisner, *Grundriß der Privathandlungswissenschaft,* Breslau 1804.

[32] Keith Devlin, *The Unfinished Game, Pascal, Fermat and the Seventeenth-Century Letter that Made the World Modern,* New York 2008.

[33] Carl Günther Ludovici, *Grundriß eines kompletten Kaufmanns-Systems, nebst den Anfangsgründen der Handlungswissenschaft, und angehängter kurzer Geschichte der Handlung von Europa, auch bis in die anderen Welttheile,* 2nd ed., Leipzig 1768, 21 (§ 22).

[34] Ibid., p. 18f. (§ 20).

evaluation of insurances, or marriage contracts are important cases of application.[35] *Hieronymus Cardano* (1501–1576) wrote a book on games in 1524, published after his death in 1663. In it, among other things, games with up to three dice are treated, and, based on this, statements about probabilities are developed. Behavioral considerations are also given, such as luck in games, the fear of throwing a dice (i.e., risk attitude), or possibilities of deception.[36] Another frequentist view, for example, published by *Jacob Bernoulli* (1655–1705),[37] and *Daniel Bernoulli* (1700–1782) shows how the utility of a game varies with the wealth position of the player[38] (later known as the *Bernoulli* utility function). It is reasonable to assume that such and other relatively "new" literature was also known to *Ludovici*, perhaps even *Bayes*' theorem.[39]

The fact that *Ludovici* recommends these new findings to merchants as beneficial for their activities is very remarkable and far-sighted. Some 25 years later, this becomes the main chapter in one of the comprehensive works.[40] After all, it takes another 150 years before uncertainty is treated in a clearly recognizable way in economic literature.[41] It then takes another 50 years before decisions under uncertainty generally find their way into the curricula of general business administration.

In the preface to his work, *Ludovici* mentions the term "science" 20 times in singular or plural form, especially in the combination of "commercial science." He emphasizes, in direct reference to *Savary,* that he does not write from practical experience, therefore no one before him had brought the "commercial science" into "an orderly system" drafted according to state of the art.[42]

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[35] Ivo Schneider, ed., *Die Entwicklung der Wahrscheinlichkeitstheorie von den Anfängen bis 1933, Einführung und Texte,* Darmstadt 1988.

[36] Hieronymi Cardani, *Opera Omnia...*, Tomus Primus, Lugduni (Lyon) 1663, section XII, 262–276. English translation by Sidney H. Gould, see: Oystein Ore, *Cardano. The Gambling Scholar*, Princeton/N.J. 1953.

[37] Jakob Bernoulli, *Ars Conjectandi,* Basel 1713 (English translation: Edith Sylla, *The Art of Conjecturing,* Baltimore 2005).

[38] Daniel Bernoulli, Specimen theoriae novae de mensura sortis, *Commentarii Academiae Scientiarum Imperialis Petropolitanae,* 1738, Vol. 5, 175–192 (English: Exposition on a New Theory on the Measurement of Risk*, Econometrica,* 1954, Vol. 22, 23–36).

[39] Thomas Bayes, An Essay towards solving a Problem in the Doctrine of Chances (communicated by Mr. Price, in a letter to John Canton, M. A. and F. R. S.), *Philosophical Transactions of the Royal Society*, 1763, Vol. 53, 370–418: www.stat.ucla.edu/history/essay.pdf (accessed May 3, 2021).

[40] Johann Michael Leuchs, *Allgemeine Darstellung der Handlungswissenschaft, Nürnberg* (Nuremberg) 1791 (reprint Vaduz/Liechtenstein 1979), 63 et seq.

[41] Frank H. Knight, *Risk, Uncertainty and Profit,* New York 1965 (1st edition 1921). The preface to the first edition begins with the words: "There is little that is fundamentally new in this book. It represents an attempt to state the essential principles of the conventional economic doctrine more accurately, and to show their implications more clearly than has previously been done." As the reception of the book shows, this is a major understatement.

[42] Carl Günther Ludovici, *Grundriß eines vollständigen Kaufmanns-Systems, nebst den Anfangsgründen der Handlungswissenschaft ...,* 2nd ed., Leipzig 1768, (preface).

5. The book by *Johann Michael Leuchs* was published in 1804.[43] He points to *Peri* and *Savary* as important sources for his own work. He does not want to present knowledge as in an encyclopedia but to frame it into an overall picture, which is precisely why he has chosen the title "system." With respect to business economics, only the first part of the work is interesting, as the second part is devoted to the "science of state governance." The presentation of the first part distinguishes between commerce or business as an art and commercial science. The former deals with the knowledge called "historical." It reports "how commerce is carried on here and there, its institutions, its habits, its products."[44] The science supplements the former by "generalized experiences" and arranges them systematically.[45] The resulting system[46] has many similarities with *Ludovici*'*s*. *Leuchs* goes beyond this with (a) an extended theory of value and price determination, (b) extensive thoughts on monetary theory and the institutions that complement and support commercial transactions (banks, insurance companies, logistics companies, the institutions of the legal system), and (c) a theory of probability, which is presented on 64 pages alone, but remains stuck in qualitative argumentation.

   *Leuchs*' work documents the endeavor to provide the businessmen with competent answers to all questions touching him in his profession. In this sense, it is counted among the comprehensive treatises of the time. At the same time, it was intended as a textbook, especially since *Leuchs* himself turned to teach in a commerce academy in Nuremberg/Germany. Even if citations are not made in the contemporary sense, the inclusion of earlier literature is nevertheless readily observable.

## 3.4 First Ideas on Business Administration as an Academic Discipline

As a teacher himself, it is not surprising that *Ludovici* (Sect. 3.3) argues for teaching "commercial science" in academies and universities. However, he refers to *Paul Jacob Marperger* (Fig. 3.7) as the supposedly first proponent of this idea.[47]

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[43] Johann Michael Leuchs, *System des Handels, mit einer Einleitung: Johann Michael Leuchs als Handelswissenschaftler* von Rudolf Seyffert, Stuttgart 1933 (reprint). Leuchs, like Ludovici, inspired many other authors, e.g. Gottlob Meisner, *Grundriß der Privathandlungswissenschaft,* Breslau 1804.

[44] Johann Michael Leuchs, *System des Handels ...,* Stuttgart 1933, 4.

[45] Ibid., 5.

[46] Ibid., 280.

[47] Reference is also made to Francis Bacon and Christian Thomasius (1655–1728): Dieter Schneider, Die ersten Handelshochschulen. In: Eduard Gaugler/Richard Köhler, eds, *Entwicklungen der Betriebswirtschaftslehre. 100 Jahre Fachdisziplin - zugleich eine Verlagsgeschichte,* Stuttgart 2002, 39–59, here 42.


**Fig. 3.7** Frontispiece and title page of one of the leading books by *Marperger*, 1714

*Marperger's* plea was made in 1715 in a very detailed manner. He asks: "*Whether it would not be advisable/to decree public Professores Mercaturae* (professors of business, K.B.) *at universities/who should teach business science and everything /that runs into it/or depends on it.*"[48] The answer is given on 23 pages (!!). The marginal treatment of economic questions in departments of philosophy or

[48] P(aul) J(acob) Marperger, *Erste Fortsetzung Seiner so Nothwendig als Nützlichen Fragen Über die Kauffmannschafft...in Ein und Zwanzig Fragen,* Leipzig/Flensburg 1715 (reprint Köln (Cologne) 1997). The same, *Trifolium Mercantile Aureum, oder Dreyfaches Güldenes Klee-Blatt der werthen Kauffmannschaft,* Dreßden/ Leipzig 1723, 1–34: Proposal for the opening of a merchant academy. However, this seems to be more of a commercial vocational school. This is to be followed by an 'information college' (ibid., pp. 35–73), conceived as an institution for further education of adults. Cf. Erich Dauenhauer, *Kaufmännische Erwachsenenbildung in Deutschland im 18. Jhdt., Diss.,* Univ. Erlangen-Nürnberg (Nuremberg) 1968, 26–56. The so-called Kameralhochschulen and Kameralfakultäten, which emerged in the last quarter of the eighteenth century, represented little more far-reaching content, which is already obvious in view of the problems of appointing capable teachers: Dieter Schneider, *Allgemeine Betriebswirtschaftslehre,* 3rd ed., 2nd reprint, München (Munich)/Wien (Vienna) 1994, 112; Eduard Weber, Der Kaufmann und sein Fachunterricht, *Zeitschrift für Handelswissenschaft und Handelspraxis,* 1914, Vol. 6, 91–95. Bruno Zieger, *Ein sächsischer Merkantelist über Handelsschulen und handelswissenschaftliche Abteilungen an Universitäten*, Leipzig (1903), mentions some of Marperger's predecessors, but does not go beyond him, but merely reproduces his text.

law is considered just as insufficient by *Marperger* as are occasional dissertations on the subject. Apart from a very extensive list of questions or puzzles worthy of investigation, he deals with 12 justifications for and three objections against university studies.

The pro arguments are:

1. *Businessmen are of great importance for the well-being of a community and should therefore be supported by university teaching.*
2. *Business knowledge can be structured according to methodological, institutional, or personal aspects and is thus accessible to systematic teaching.*
3. *Especially for the new generation of merchants, the imparting of knowledge is* "*of utmost necessity.*"
4. *Students of theology, law, and medicine would also benefit from absorbing commercial knowledge during their studies.*
5. *As in the* "*Chirurgia,*" *professors can also train their junior staff* "*in the noble Mercantie.*"
6. *There are strong links with natural and international law, history, geography, and philosophy taught in universities.*
7. *The* "*errors and infirmities*" *of commercial trade result from a course of action based on* "*erroneous delusion and badly established habits.*" *This can be counteracted by imparting* "*sensible regulations.*"
8. *The development of commercial law would be encouraged.*
9. *Taking up teaching would attract additional students. There would be no harm in teaching in German so that students would not need to know Latin. German language is now (!) also partially used in one or the other subject at universities.*
10. *The esteem in which merchants are held would increase so that* "*they would no longer be considered so contemptuously as hitherto/by incompetent or arrogant politicians (especially by those/who always use the word pepper-sack)...*" *In England, even the sons of noble houses are turning to commerce, especially since in times of peace nothing was earned in the fighting of wars, and sitting at home on the estate was not productive enough.*
11. *The dowries of wealthy merchants' daughters when they married aristocrats and scholars deprived companies of capital. This should be countered. Merchants educated in universities apparently represent at least an equally good* "*match*" *when marrying.*
12. *Teaching business is closely linked to many other sciences. Not least, for this reason, the professors to be appointed have to meet high standards of knowledge.*

It is a list that impressively reflects the zeitgeist. The argumentation continues with the rejection of three counterarguments:

13. *The class of merchants is somewhat* "*mean,*" *abuses occur, making it contemptible, especially by representatives of other departments. However, in other departments occur abuses as well, which are named according to their nature.*
14. *The existence of schools of writing, arithmetic, and accountancy was considered sufficient to educate merchants. Further* "*information*" *was not meant to be*

*necessary, and practical relevance in university teaching could be harmful to science. This is contradicted with reference to new business requirements and the importance of practical experience in other disciplines.*

15. *It is not clear who would have to pay the business professors. Here, reference is made to the budget for the university in total that might be sufficient for the professorships as well as to the possibility of defining new priorities, i. e. reducing the number of professors in less important fields in favor of the new ones in business science.*

Because of the arguments to establish the scientific nature of business studies, it is interesting that reference is made to methods, their application to ensure rationality, and important unresolved issues that would need research.[49] The fact that it takes almost 200 years until the demand for university studies in business administration achieves topicality again demonstrates how little the arguments were heard. *Marperger*'s proposal is supported by *Ludovici*, who calls for a "commerce academy." He points out at the same time that similar institutions had been established in Portugal in 1759, in Hamburg in 1767, in Hanau in 1764. In his opinion, the city of Leipzig, with its trade fair, incidentally, would be the perfect place for such a project. Alternatively, universities could be considered institutions to teach business management ("*or at least at universities... the decree could be made that specially appointed teachers would have to ... teach business management*").[50] Finally, open competitions could serve to develop business theory further. In England, favorable experiences had been made with this. For example, the task presented in 1755 asked to answer the question: "*In what way do business and civil liberty mutually assist and support each other?*"[51] The interdependence of the constitution of a state and its economic order continues to be of interest 200 years later.

[49] Completed in 1776, Denis Diderot suggested a university-based school of "agriculture and commerce" to the Russian government (in the extended version of his plan, from which it was eliminated in a shortened version), because "both objects are the most important of a society": Plan d'une Université pour le Gouvernement de Russie ou d'une Eduction Publique dans toutes les Sciences. In: *Oeuvres Complètes de Diderot*, Vol. III, Paris 1832.

[50] Carl Günther Ludovici, *Grundriß eines vollständigen Kaufmanns-Systems...*, Leipzig 1768, 24 et seq.

[51] Ibid., 26 et seq.

# Chapter 4
# Three Streams of Knowledge Generation in Nineteenth-Century Europe


**Abstract** Three approaches contribute to management ideas in the nineteenth century: historical schools, empirical and experimental approaches, and theoretical analyses. Still, none of these approaches is exclusively focused on the management of firms. Early books on the management of firms are not broadly recognized because a noticeable management discipline does not yet exist.

In the nineteenth century (and continuing into the twentieth century)[1] three streams of knowledge development can be identified:

- Normative-value laden
- Empirically-realistic
- Theoretical

We deal with these streams of methodology in the following. The latter two streams attempt to avoid value judgments as much as possible. The empirical stream these days applies an inductive approach, while the mainstream of the theoretical stream prefers a deductive procedure to arrive at its results. It would not be correct to associate these approaches with one author throughout all of his life. Occasionally authors change their approaches. The normative stream is represented by Marxism as one type and the "Historical School" as yet another one, which politically takes a more or less liberal line.

## 4.1 The Normative Approach

1. Observing the "exploited" class of workers without the possibility to organize and achieve power in trade unions, and the conviction that value can only be created by human labor ("Arbeitswerttheorie," labor theory of value) leads to the

[1] Günter Wöhe, Betriebswirtschaftslehre, Entwicklungstendenzen der Gegenwart, *Handwörterbuch der Betriebswirtschaft,* 4th ed., Stuttgart 1974, 710–747, here. 713 et seq.



K. Brockhoff, *Management Ideas*, Contributions to Management Science,
https://doi.org/10.1007/978-3-031-09962-5_4

sharpening of classical positions in Marxism. This is laid down in several political manifestos and the three volumes of "*Das Kapital*" by *Karl Heinrich Marx* (1818–1883) (completed by his sponsor and friend *Friedrich Engels* (1820–1895)). As foreseen by the authors, the revolutionary economy develops deterministically, led by the class of workers, and ascends to socialism and then to communism. At first sight, the text does touch upon management. However, the steps from a "bourgeois" society to communism eliminated the autonomous decisions of the entrepreneurs or businessmen. Instead, all activities at the level of the individual business will be determined by state planning (for an illustration see Sect. 9.2). *Karl Raimund Popper* heavily criticizes the determinism contained in Marxism in his book "*The Poverty of Historicism*."[2] *Joseph Schumpeter* deplores "*. . .the influence of passionate value-judgments*."[3] Therefore, we do not go into these ideas.

However, a small sideline should be mentioned. In their correspondence, *Marx* and *Engels* re-discover an effect identical to the matching fund of *John R. McCulloch (1789–1864)*.[4] If all depreciation on a certain fixed asset is immediately and identically re-invested, the total capacity of the assets represented can increase (capital expansion). This effect was again rediscovered in Germany and named the "*Lohmann–Ruchti Effect*" after the authors who published it.[5]

2. Another class of the historical approach is occasionally entangled in disputes with Marxism. The "Historical School" explores the past empirically and through hermeneutics, trying to prove a more microeconomic view as unnecessary or even obsolete.[6] The microeconomic view is rejected because it apparently accepts a value judgment, namely the objective function of a business and profit maximization in particular. Maximizing the total benefit of a society does not appear to cause the same problems to its scholars.

At the same time, the School led to a high-profile action: the establishment of the "*Verein für Socialpolitik*" in 1872. Prominent representatives of this action include

[2] London 1960.

[3] Joseph A. Schumpeter, *History of Economic Analysis,* New York 1954, 385.

[4] Karl Marx/Friedrich Engels, *Briefe über das Kapital,* Berlin 1954, 144 et seq.

[5] Karl Hax, Karl Marx und Friedrich Engels über den 'Kapazitätserweiterungseffekt', *Zeitschrift für handelswissenschaftliche Forschung*, 1958, Vol 10 n.s., 222–226. Robert Buchner/Jürgen Weinreich, Der Einfluß des Abschreibungsverfahrens auf die Kapazitätsveränderung im Zeitablauf beim Marx-Engels-Effekt, *Zeitschrift für betriebswirtschaftliche Forschung*, 1971, Vol. 23 n.s., 454–466; Martin Lohmann, *Betriebswirtschaftslehre. Wirtschaftslehre der gewerblichen Unternehmungen*, 2nd ed. (according to the title page "3rd, expanded edition"), Hamburg 1943, 90; Heinz Langen, Einige Bemerkungen zum Lohmann-Ruchti-Effekt, *Zeitschrift für Betriebswirtschaft*, 1962, Vol. 32, 307–313. See also: R. F. Fowler, *The depreciation of capital*, London 1934.

[6] Lujo Brentano, Privatwirtschaftslehre und Volkswirtschaftslehre, *Bankarchiv,* 1912, Vol. XII, 1/1–6. Critical on this: Alfred Isaac, *Die Entwicklung der wissenschaftlichen Betriebswirtschaftslehre in Deutschland,* Berlin 1923, 38 et seq.

*Gustav Schmoller* (1838–1919) and *Lujo Brentano* (1835–1917). The latter, an early pioneer of the idea of the social market economy, distinguished himself in a particular way with an attack on "*Privatwirtschaftslehre* (*private business theory)*," which he accused of sharing the interest of entrepreneurs in their sole efforts to make a profit.[7] At a university professors' conference held in Leipzig in 1909, he rejected the "*...undisguised attempt (to) set up a professorship at Leipzig University to represent the interests of entrepreneurs...*".[8] Business administration professor *Heinrich Nicklisch* tried to circumvent this attack with a normative claim to a humanitarian entrepreneurship based on idealism,[9] as did *Eugen Schmalenbach* with the formula of "gemeinwirtschaftliche Wirtschaftlichkeit (societal economic efficiency)" as a business objective (more in Sect. 8.1).[10] However, this could only be operationalized in the case of profit maximization in perfect competition that results in a zero profit level for the supplier. *Schmalenbach* asked alternatively to conduct research to identify business optima "in the interest of society."[11] Interestingly, business scholars disregarded the macroeconomic findings on the function of entrepreneurial profits that could have saved them some detours. After all, the concept of economic circulation had been known for more than a century at that time.[12]

An impression of how one of the representatives of the historical school, *Gustav Schmoller,* argues, is presented in the following short quotation:

"*The modern enterprise, mainly the large-scale enterprise. The factory.*

*Wherever in states in classical antiquity, the house slave became the mine slave, the plantation slave, the factory slave, there arose large business enterprises essentially motivated by profit-making. As Nicias of Athens had 1000 slaves in the Laurian mines, so the so-called familiae of wealthy Roman knights and freedmen counted up to 5, 10, and 20,000 slaves; they were half princely households, half sharply disciplined large-scale enterprises that conducted commerce, traffic, and crediting which brought agricultural and manufacturing products with significant capital and perfect technology to splendid developments that yielded considerable profits....*

*The whole of the Middle Ages was far removed from anything similar, even though there existed workshops and workhouses with a dozen or more workers at some of the feudal courts and many monasteries. ... In the great Italian communities during the Renaissance period, large industrial (enterprises, K.B.) emerge besides*

[7] Georg Obst, ed., Kaufmännische Betriebswirtschaftslehre, in: *Das Buch des Kaufmanns,* 7th ed., Vol. II, Stuttgart 1928, 1–579, here 11 et seq.

[8] Lujo Brentano, *Mein Leben im Kampf um die soziale Entwicklung Deutschlands,* 1931, Richard Bräu/Hans G. Nutzinger, eds, Marburg 2004, 59, 228.

[9] Heinrich Nicklisch, *Der Weg aufwärts! Organisation,* Stuttgart 1920.

[10] Eugen Schmalenbach, *Dynamische Bilanz,* Leipzig 1931.

[11] Eugen Schmalenbach, *Dynamische Bilanzlehre,* 1919, here quoted from Alfred Isaac, *Die Entwicklung der wissenschaftlichen Betriebswirtschaftslehre in Deutschland,* Berlin 1923, 20.

[12] François Quesnay, *Tableau économique*, Versailles 1758/1759.

*handicraft and home industry; and here and there in northern Italy begin firms attached to estates; ... But still only in the course of our century, and mainly since 1850, has the large industry found a more considerable spread in Western Europe and the United States. . . .*

*We can thus define the modern business enterprise, which develops its nature most concisely in the form of the large-scale enterprise, as*

- *the independent business establishment,*
- *detached from the family business of the entrepreneurs, civil servants, and workers*
- *which is set up and run according to purely commercial and technical principles, and*
- *which, in the hands of the entrepreneur who procures or possesses the capital,*
- *with the help of monetarily paid officials, apprentices, technicians, and workers,*
- *conducts a branch of trade or production at its own risk*
- *works for the large (anonymous, K.B.) market, often at a national or international scale,*
- *primarily with the objective to make a profit.*"[13]

Astonishingly, no answer is given to the question of how one should imagine the management and governance of such large-scale enterprises in antiquity or in more recent times. Hierarchy appears to be undisputed. In fairness, it must be pointed out that the respective chapter quoted here is preceded by references to earlier publications by the author and further references to the literature. Statistical data are also included, but their validity can hardly be assessed. Definitions are presented with a reasonably general claim to validity. This claim is not always sustainable for specific further research.

Even contemporaries knew that the increasing number of joint-stock corporations established in the second half of the nineteenth century clearly illustrated agency problems by management acting opportunistically rather than pursuing the owners' different corporate goals. Massive fraud at the expense of shareholders occurred as well as the bursting of "bubbles," for example, at the Vienna Stock Exchange in 1873, which affected all of Europe. State supervision, which had been mandatory in earlier times (a relic of the initially necessary licensing of joint-stock corporations), proved inefficient and ineffective. Instead, heated discussions led to the step-by-step implementation of supervisory boards independent of the management board, internal and external audits of the financial statements, incentives by mandatory shareholdings of board members, profit-sharing models, preferably based on multi-year results, controls, and the strengthening of business ethics.[14]

[13] Gustav Schmoller, *Grundriß der Volkswirthschaftslehre,* First, larger part, 1st to 3rd edts., Leipzig 1900, 428 et seq.

[14] Klaus Brockhoff, Die Steuerungsproblemtik von Aktiengesellschaften im 19. Jahrhundert. In: Wenzel Matiaske/Wolfgang Weber, eds., *Ideengeschichte der BWL. ABWL, Organisation, Personal, Rechnungswesen und Steuern,* Wiesbaden 2018, 261–284.

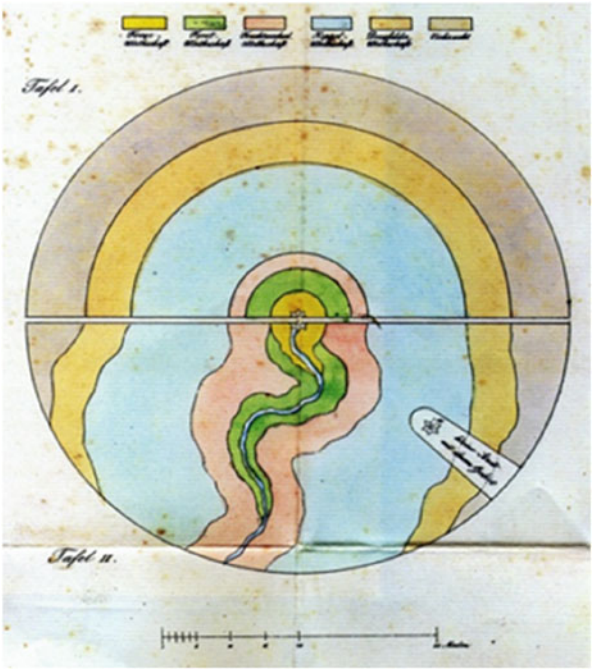


**Fig. 4.1** The so-called "*Thünen Circles,*" 1826. Source: Johann Heinrich von Thünen, *Der isolirte Staat in Beziehung auf Landwirthschaft und Nationalökonomie, oder Untersuchungen über den Einfluß, den Getreidepreise, der Reichthum des Bodens und die Abgaben auf den Ackerbau ausüben,* Hamburg 1826

## 4.2 The Empirical-Realistic Approach

1. An important forerunner of the "empirical-realistic" approach is *Johann Heinrich von Thünen* (1783–1850), who, by conducting 10 years of actual experiments on his estate as well as thought experiments, advanced knowledge substantially. In order to maximize the net yield of the agricultural estate, he uses marginal analysis.[15] He argues "ceteris paribus" (that is, focusing on one influencing variable while assuming all others to remain unchanged) and thus applying what is called "isolating abstraction." Using these methodologies and logic, he succeeds in developing an operational theory of location, which explains different land uses around a city conceived as a sole market. Later, the resulting picture of land use is referred to as "*Thünen's circles*" (Fig. 4.1).[16] A productivity-based wage theory is also put forward, assuming that workers could build up interest-bearing capital stock. The wage formula did not convince theory or practice,

[15] Dieter Schneider. *Betriebswirtschaftslehre. Vol. 4: Geschichte und Methoden der Wirtschaftswissenschaft*, München (Munich)/Wien (Vienna) 2001, 176 et seq., shows that contemporaries (above all Count Buquoy-de Longeval) already used marginal analysis to determine maximum profits.

[16] The upper half of the picture represents the model of a perfect plain, while the lower half expands the model to include a navigable river. The colors (or shades) stand for different types of agricultural activities.

whether then or in more recent times. The fact that *von Thünen* had it chiseled on his tombstone proves how convinced its creator was of it. Therefore, we return to the methodology of his main work.

On the very first page of his book, *von Thünen* outlies how to construct the model economy he has in mind. He abstracts from reality, which he confronts in later chapters with the model results, augmented by plausible assumptions and followed by conclusions drawn from it. The book begins as follows[17]:

"*Imagine a very large city situated in the middle of a fertile plain through which no navigable river or canal flows. Let the plain itself consist of a thoroughly uniform soil, which is everywhere capable of culture. At a great distance from the city, the plain ends in an uncultivated wilderness, whereby this state is completely separated from the rest of the world.*

*The plain contains no cities beyond the one great city, and this must therefore supply all manufactured products for the country, just as the city can be supplied with food solely from the land surrounding it. We imagine the mines and salt works ... in the vicinity of this central city ... The question now arises: how will agriculture develop under these conditions, and how will the larger or smaller distance from the city affect agriculture if pursued with the utmost consequence (efficiency, K.B.). It is generally clear that in the vicinity of the city such products must be cultivated that are of great weight in proportion to their value, or that occupy an ample space, or the cost of transporting them to the city is so great that they cannot be supplied from a further distance; also such products which are liable to perish, and must be consumed fresh.*

*For these reasons alone, rather sharply separated concentric circles will form around the city, in which these or those plants will constitute the main crop.*"

In Fig. 4.1, the upper half illustrates the case described, while the lower half extends the assumption on the accessibility of the town by a navigable river. Moving from the outside to the inside, we should find cattle breeding, three-field economy, paddock economy, crop rotation economy, forestry, and so-called "freye Wirtschaft (free agriculture)" with horticulture and fruit-growing. The middle is occupied by the town.

Intelligent analytics clearly is used here as an instrument of knowledge acquisition. It combines empiricism and generalizing theory. In his plan for an academy of sciences in Berlin, *Leibniz* demands to unite "*theoriam cum praxis* (theory and practice)."[18] The methodology applied by *von Thünen* perfectly meets this motto. Moreover, *Leibniz* had in mind that kings or ministers are not

[17] Johann Heinrich von Thünen, *Der isolirte Staat in Beziehung auf Landwirthschaft und Nationalökonomie, oder Untersuchungen über den Einfluß, den Getreidepreise, der Reichthum des Bodens und die Abgaben auf den Ackerbau ausüben,* Hamburg 1826 (reprint Düsseldorf 1986), 1 et seq.

[18] It became the motto of the Academy of Sciences, founded in Berlin on July 11, 1700. (Churfürstlich Brandenburgische Societät der Wissenschaften). A short description of the efforts to establish the Academy, mission, financing proposals, and the difficult first years in: Adolf Harnack, *Geschichte der Königlich preußischen Akademie der Wissenschaften zu Berlin,* Vol. II,

interested in abstract things but in valuable and applicable things. This appears to apply to private investors even more.[19]

2. The extent of *von Thünen*'s realistic insights and knowledge is also visible from his critical remarks on the details of the double-entry bookkeeping of Baron *Johann Caspar von Voght*'s estate. He recognizes very well the potential of this business accounting, especially concerning cost center accounting, when cost centers correspond to business units. *Von Voght*'s model estates, which were located on the outskirts of Altona near Hamburg at the time, were divided into such business units and additional service centers. This was undoubtedly a very modern approach. However, *von Thünen* recognizes precisely that, in addition to correct accounting, a correct and consistent valuation of inputs and outputs, particularly of the services exchanged between the cost centers, is necessary to arrive at meaningful results. Otherwise, the accounts have no value as a basis for operational decisions. An excerpt from his critical remarks points at some typical valuation errors:

   "*All animal feed is attributed to the cattle according to the market price [*i.e.*, not at internal costs, K.B.]. However, because the cattle have achieved less than the value of the fodder and the cost of labor [*sic*! This is no market value.], a loss is shown.*

   *Harvest account of rye: The profits of this and the following accounts are due to the fact that the prices in the previous year [*sic*!] were applied and assessed too low.*

   *The system of harnessing up horses* etc.*: The horses are credited with their fodder valued at the market prices [although it is obviously produced by the estate, K.B.]. On the other hand, they are credited with 40s for 1 day. The correctness of this rate is proved for this year by the fact that the account closes without a profit [the value for performance is thus derived from the target result of zero, K.B.].*"[20]

   Reference is also made to a balance sheet in addition to the profit and loss account. It remains unclear whether a depreciation account existed in which value reductions of fixed assets could be collected. There would also have to be accounts to capture value improvements resulting from "extra labor" invested in improving soil quality. Despite sophisticated accounting calculations, the model estate ran at a loss, which was credited to the private account of the owner, who offset it against other net profits. This led some critics at the time to conclude that it was not necessary to have such a detailed bookkeeping.

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Berlin 1900, here 76; Eike Christian Hirsch, *Der berühmte Herr Leibniz,* München (Munich) 2000, Chap. 11, esp. 406.

[19] (Gottfried Wilhelm Leibniz), Denkschrift II, 1700, in: H.-St. Brather, ed. *Ausgewählte Quellen zur Geschichte der Berliner Societät der Wissenschaften 1697–1716,* Berlin 1995, 75–80.

[20] Johann Heinrich von Thünen, Die doppelte Buchführung des Herrn von Voght, I., published posthumously: *Thünen-Archiv, Organ für exakte Wirtschaftsforschung,* 1906, Vol. 1, 113–122, here 121.

## 4.3 Theoretical Approaches

As in the approaches mentioned above, different theoretical streams to develop new knowledge can be observed. Some authors use more or less basic mathematical reasoning to derive results; others prefer a hermeneutic approach together with experiences and observations. In general, the reasoning is deductive. This is illustrated in the early work of *Nassau William Senior* (1790–1847), who derives results from two basic assumptions: All economic subjects try to maximize utility and marginal utility declines with increasing utility levels.[21] Again, we demonstrate the theoretical approaches by specific examples.

1. Forestry must deal with long-term developments. The change in assets due to annual growth in timber mass must be estimated, the optimal time for harvesting trees must be determined, and the income risks must be made accountable. For this purpose, comprehensive textbooks were published[22] and advanced calculation methods (using net present value concepts) were developed.[23]
2. In the mid-nineteenth century, a version of the economic principle was formulated: "*All progress, all perfection in business life is aimed solely at obtaining, with a given quantity of wages and capital uses, either a greater return or the same, if not a greater return, with a smaller expenditure of inputs.*"[24] The last part of this sentence still accepts the erroneous view of double extremes that is still often found today. However, the two sides of economic efficiency are already recognizable.
3. A new look at manufacturing and its management arises. We should first mention *Jean-Baptiste Say* (1767–1832) because of his innovative views on research as a driver of expansion and the risks of business. His criticism of the economic consequences of the Napoleonic wars may have contributed to the fact that his main work was not allowed to appear during *Napoleon*'s government. The creation and distribution of national wealth in an industrialized nation is his central theme.[25] It is then made clear that the "perfect" industry is based on three elements: theory, application, and execution. To be effective, the disposal of the "enlightenments directly useful for industry" must not be interfered with by

[21] Nassau William Senior, *An Outline of the Science of Political Economy,* London 1836 (reprint. Düsseldorf 2000).

[22] Wilhelm Gottfried Moser, *Grundsätze der Forstwirtschaft,* Frankfurt/Leipzig 1757.

[23] Esa-Jussi Viitala, The Discovery of the Faustman Formula in Natural Resource Economics, *History of Political Economy,* 2013, Vol. 45, 521–548. Martin Faustmann, Berechnung des Werthes, welchen Waldboden sowie nicht brauchbare Holzbestände für die Waldwirtschaft besitzen, *Allgemeine Forst- und Jagdzeitung,* 1849, Vol. 15, 441–455.

[24] Jean Gustave Courcelle-Seneuil, *Traité théorique et pratique des entreprises industrielles, commerciales & agricoles ou manuel des affaires,* 2nd ed., Paris 1857).

[25] Jean-Baptiste Say, *Traité d'économie politique ou simple exposition de la manière dont se forment, se distribuent, et se consomment les richesses,* Vol. 1, Paris 1803 (reprint Düsseldorf 1986).

ignorance and prejudice. Such resistance to innovation will again appear in later writings (Part 2). The high degree of confidence in the skills now attained in the management of industrial enterprises is expressed by the fact that *Say* considers them to be less risky than commerce.[26] This, of course, presupposes certain entrepreneurial prudence, as *Ludovici* had already pointed out. Four risk-reducing characteristics of industrial entrepreneurship are considered to be:

- "*The business rests on more secure calculations.*
- *One may deal with smaller quantities and consequently experience less risky exposure.*
- *In most cases, the actions can be repeated several times during 1 year; therefore, they require capital for a shorter time per case.*
- *Finally, when actions are successful, one can exploit the success for more extended times; the production secret is less exposed to external views, and in some nations, exclusive use of inventions is guaranteed by a patent.*"[27]

The concern for adequate security of the enterprise stimulates two considerations: One should not wait for a lucky coincidence that brings about business success. Instead, success should be brought about by research, using resources that otherwise find no risk-free use or that would have been used for leisure or amusement.[28] Spending for research is thus considered consumption, a view that was held for a long time and that neglected the character of investment in research and development. It seems that this view was quite common at the time.[29]

The state should not be alone responsible for research. However, it can support research activities by introducing intellectual property rights. England is considered exemplary in this respect. France followed suit with patent laws in 1791 and 1792.[30] In *Say*'s view, innovators deserve the highest honor, including the immortality of their names:

"*Honor to those men who have found their amusement in such noble activity! Honor to the men who have spent their wealth on such useful consumption! I do not believe that there is a more worthy, a more noble activity to spend wealth or leisure time. Such men have given to their fellow citizens, and to the entire world, gifts that are higher valued than their immediate expenditures . . .*"[31]

It is the economic benefit of innovation that stands out in the text. The fact that it is also a business benefit recedes into the background. Nevertheless, a theme is addressed that first appeared in *Savary's* work, which has subsequently been

[26] Ibid., 8.

[27] Ibid., 144.

[28] Ibid., 145.

[29] Anecdotical evidence is given by: Theodor Fontane, Johann Kunckel, in: *Wanderungen durch die Mark Brandenburg,* Wiesbaden o.J., Vol. 4, 502. Patricia Goerg, *Glas. Eine Kunst*, Berlin 2013.

[30] Jean-Baptiste Say, *Traité d'économie politique ou simple exposition de la manière dont se forment, se distribuent, et se consomment les richesses*, Paris 1803, 261–265.

[31] Ibid., 145.

taken up a few times: The great importance of innovation for the generation of income. *John Stuart Mill* (1806–1873), for example, advocates granting individual incentives to inventors (actually called designers in his example) only 45 years later.[32]

4. An important piece of theoretical research was published by *Arwed Emminghaus* (1831–1916) in Germany. The subject of his "*Allgemeine Gewerkslehre*" (*General Industrial Economics)* is profit-oriented industrial enterprises, which he carefully distinguishes from other economic activities.[33] This is followed by a plea for the scientific exploration of entrepreneurial activities and theory development, which should fit in a system of sciences. One is reminded of *Adam Smith*[34] when one reads that the purpose of entrepreneurial activity is "*not to satisfy the economic needs of others, but to procure the means to satisfy one's own needs, in income, in making a net profit, to increase and consolidate wealth*".[35] This is true, of course, in a competitive environment. This purpose is called "privatwirthschaftlich (private economics)"; thus, a term is used, which is later programmatically but unsuccessfully defended by *Wilhelm Rieger* against business administration as name for the discipline (Sect. 8.1). The factors of production labor and capital are then discussed in detail. For example, with regard to labor, motivating forms of wages are dealt with intensively, such as the incentive wage for workers and the so-called bonus payment for management. The justification for the latter anticipates the arguments of agency theory: The top managers "*will most certainly solve their tasks with the same objectives as the entrepreneur himself would solve them, if their economic position corresponds as closely as possible to that of the entrepreneur, i.e. if, like him, they can also expect special profits for themselves when the business is flourishing, whereas unfavorable results also become economically felt by them*."[36] Apart from all economic considerations, every employment relationship has to rest on "loyal, devoted personal care" because of "moral reasons."[37] For the same reasons working on Sundays or child labor should not be permitted. At the same time, it is argued that excessive demands on workers must be avoided for economic reasons alone. The book ends with an appeal for "order" and "to give an account of the present state of the enterprise at all times."[38] For this purpose, bookkeeping is mandatory, with double-entry accounting being given preference.

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[32] John Stuart Mill, *Principles of Political Economy with some of their applications to social philosophy,* London 1848, 51 et seq.

[33] Arwed Emminghaus, *Allgemeine Gewerkslehre,* Berlin 1868, 2 et seq.

[34] Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations,* London 1776, 17: "It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest."

[35] Arwed Emminghaus, *Allgemeine Gewerkslehre,* Berlin 1868, 28 et seq.

[36] Ibid., 69.

[37] Ibid., 75.

[38] Ibid., 307.

This work alone could have laid a stable foundation for business education at a fairly high level. Why was it not immediately recognized and referred to? *Klein-Blenkers* answers the question with three arguments: (a) *Emminghaus* served as a university lecturer only for a short time, so he could hardly exert any influence, (b) the work was ahead of its time, so it was not properly understood; (c) there was a lack of professional institutionalization of business education, thus a lack of discussion opportunities with peers. In later years, the book was quickly forgotten. The title did not signal the breadth and depth of the content of business administration, the presentation was too demanding for professional, lower-level commercial schools, and with some university professors, it triggered ideological reservations because of the acceptance of the profit motive, so for example with *Schär.*[39] But even the theoretically much less demanding work of *Max Haushofer, jr.* (1840–1907), which was conceived as a compendium and, in particular, presented the relationship between entrepreneurs and workers in a somewhat distanced manner, did not receive sustained attention.[40] Other than *Emminghaus,* this author questioned whether monetary incentives for top management would be effective to align the business motives of owners and employed managers. The same problem occurred to *Alfred Marshall* (1842–1924), who recognized that shareholders were "almost powerless" in corporations with widely spread share ownership. While at first, he suggested upholding the traditional "*. . .spirit of honesty and uprightness in commercial matters*" to secure the owners' interests, he later called for loyalty by a suitable "esprit de corps" and standardized controls ("mechanical methods of administration") and trusteeships exercised by experienced people, for instance, bankers.[41] This contradicts the more pessimistic views on effective motivators taken by *Emminghaus* or—to a lesser degree—by *Haushofer.*

The impressive work by *Adolf Berle* (1895–1971) and *Gardiner Means* (1896–1988) on "*The Modern Corporation and Private Property*" from 1933[42] is often taken as the first study to having discussed the split of ownership and management as a source of agency problems. We have sketched above that basic ideas in this field were voiced much earlier.[43]

[39] Fritz Klein-Blenkers, Arwed Emminghaus (1831–1916). Ein unbeachteter Wegweiser zur Betriebswirtschaftslehre als akademische Wissenschaft. In: Fritz Klein-Blenkers./Karl Robl, eds, *Schriften zur Geschichte der Betriebswirtschaftslehre,* Köln (Cologne) 2009, Vol. 19, 9–27.

[40] Max Haushofer, *Der Industriebetrieb. Ein Handbuch für Industrielle, Kaufleute (*etc.*) sowie zum Gebrauch an technischen Schulen,* Stuttgart 1874.

[41] Alfred Marshall, *Principles of Economics*, London 1890, 365; Alfred Marshall, *Industry and Trade*, London 1921, Chap. VIII.

[42] New York/NY.

[43] Among others see: James Laurence Laughlin, *The Elements of Political Economy, with some applications to questions of the day*, New York 1887, 225: "it is by no means necessary in these days that the most skillful manager should be the owner of the capital which is invested and employed under his management." Richard Cantillon, *Abhandlung über die Natur des Handels im*

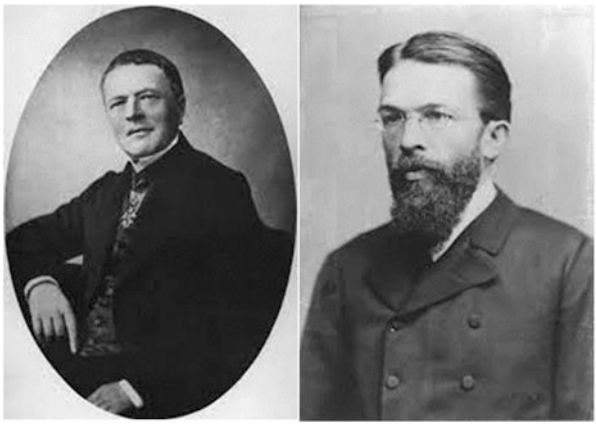

**Fig. 4.2** Antoine Augustine Cournot (left) and Carl Menger. Sources: Institute for New Economic Thinking (left); https://geschichte.univie.ac.at/de/bilder/carl-menger-1840-1921-politische-oekonomie-volkswirtschaftslehre

5. Another school of theoretical knowledge generation made more or less use of mathematics to make their points. Two representatives of this approach are presented here.

   Frenchman *Augustin Cournot* (1801–1877) has to be mentioned first (Fig. 4.2). He developed a mathematically formulated price-demand function ("loi de la demande ou du débit"). From this and a cost function, he derived the maximum net revenue of a monopolistic firm and expanded his reasoning to other types of markets, most notably the duopoly ("du concours des producteurs" (on the competition of producers)). The mutually dependent producers determine the quantities offered of a homogenous product each by assuming that the other party leaves their supply unchanged. Often, this is not true. This leads to a new round of quantity changes until finally, both competitors recognize that they have reached a point where it does not make sense to initiate new changes.[44] This is an equilibrium point. The same logic was developed in a review of *Cournot*'s book by *Joseph Bertrand* (1822–1900) with price as the decision variable.[45] Much later, it was shown in the theory of games that this corresponds to the so-called *Nash* equilibrium.[46]

   To exemplify how *Cournot* uses mathematical reasoning throughout his work, we present the case of monopoly pricing:

   "*Let us move on to a man who owns the secret of a pharmaceutical preparation or artificial mineral water* [both constituting a monopoly, for the time being, K. B.]. *For their production, he pays for the primary inputs and the labor. The*

*allgemeinen,* Jena 1931 [1755], 38 et seq., who sees only landowners as independent (who may or may not be managers).

[44] Augustin Cournot, *Recherches sur les principes mathématiques de la théorie des richesses,* Paris 1838 (Reprint Düsseldorf 1991), 46 et seq., 61 et seq., 112 et seq.

[45] *Journal des Savants,* 1883, Sept., 499–508.

[46] John F. Nash, Non-cooperative Games, *Annals of Mathematics,* 1951, Vol. 54, 286–295; John F. Nash, Two-Person Cooperative Games, *Econometrica,* 1953, Vol. 21, 128–140.

**Table 4.1** Resource distribution and utilities before and after first step of trading for two parties A and B

| | | Original situation | | | | | | Situation after first trade step | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1st | 2nd | 3rd | 4th | 5th | 6th | 1st | 2nd | 3rd | 4th | 5th | 6th |
| A | Horses | 50 | 40 | 30 | 20 | 10 | 0 | 50 | 40 | 30 | 20 | 10 | – |
| | Cows | 50 | – | – | – | – | – | 50 | 40 | – | – | – | – |
| B | Horses | 50 | – | – | – | – | – | 50 | 40 | – | – | – | – |
| | Cows | 50 | 40 | 30 | 20 | 10 | 0 | 50 | 40 | 30 | 20 | 10 | – |

Source: Adapted from Carl Menger, *Grundsätze der Volkswirthschaftslehre*, Wien 1871, 168 et seq

*objective is not the maximization of the gross revenue* p F(p) [with p the prize and F(p) the demand, K. B.], *but the net revenue* p F(p) - φ (D), *where* φ (D) *stands for the cost of production of a quantity of* D *liters per year. Since* D *is linked to* p *by the relationship* D = F(p) [there is no inventory, K. B.] *the complex formula* p F(p) - φ (D) *can be made entirely dependent on* p. . . . *Consequently, the price* p *at which the supplier should sell his good is given by the function*

$$D + d\,D/d\,p\,[p - d\,\varphi\,(D)/d\,D] = 0.$$

*This price determines at the same time the net revenue of the inventor, the capital value of his secret, or his productive fund ("fonds productive").*"[47]

The solution found by the author is the more general rule to equate marginal revenue and marginal costs to arrive at an extreme point for profit. Naturally, *Cournot* discusses the shape of the functions involved and their realism. Further, special cases are discussed as well as the inclusion of certain taxes. This demonstrates how the results could be made more realistic.

6. The second example is that of the Austrian *Carl Menger* (1840–1921).[48] Mathematical apparatus is almost absent. The reasoning is verbal, but the logic is compelling. *Menger's* models are constructed to be free from "intervening, secondary influences."[49] This was called isolated abstraction earlier. He invites his readers to observe and analyze specific situations: passengers on board a ship with only ship rusk or alternatively with diverse types of food, which serves to explain value and scarcity as one of its determinants. In another scene, he observes two farmers with identical wants living in blockhouses in a jungle remote from other people. Farmers A and B are equipped with equal pieces of land and two types of cattle each (cows and horses). Table 4.1 exhibits the

[47] Augustin Cournot, *Recherches sur les principes mathématiques de la théorie des richesses,* Paris 1838 (Reprint Düsseldorf 1991).

[48] Carl Menger, *Grundsätze der Volkswirthschaftslehre,* Wien (Vienna) 1871 (Reprint Düsseldorf 1990).

[49] Ibid., 162.

original distribution of cattle together with their marginal utilities. A owns six horses and one cow; B owns six cows and one horse at the outset. The respective marginal utilizes of the first, second, third, etc. piece of cattle are giving in the table.

In a first step of trading, A gives away the sixth horse, which has no utility to him. However, B increases its utility by 40. B gives away the sixth cow with no loss of utility, while this cow increases utility of A by 40. Both achieve a utility of 200. Further steps follow until no further utility increase can be realized by trading. In general terms:

"*The limit is reached when no quantity of a good is owned by one that has a lower value for him, compared with a quantity of the other good owned by the other, while at the same time the latter person experiences the reverse relationship of good's values.*"[50]

## 4.4 Interim Results

We observe that in the nineteenth century, ideas relevant to business administration emerged from different streams of methodology. Beyond collecting merely experiences, the authors consider empirical analysis of data or historical analyses. *Von Thünen* is ready to perform experiments to generate more insight. Double-entry bookkeeping has become common, it is even been used experimentally to manage business units of a larger enterprise. Some authors went beyond their academic work and engaged in economic policy, particularly concerning improving the economic situation of the lower classes. Because business administration is not yet institutionalized, relevant ideas are offered by economists, forest managers, professional farmers, mathematicians, and others. *Schumpeter* considers the "general applicability" of marginal analysis to economic problems as the significant achievement of *Menger*.[51] A similar judgment can be made on *Cournot* and *Gossen*.

This indicates the interest taken in dealing with questions that arose due to industrialization, its social consequences and the new demands of financing big firms. Business management becomes more complex. Managers are not only observed more closely by owners of firms but also by society at large. Political representation in parliaments gets more power and is involved in legislation to regulate business. Step by step, these developments help to develop business administration into a science. We first discuss what indications permit us to speak of a "science" in this context.

[50] Ibid., 174. The second derivative of the utility curve is a negative constant independent of the number of cattle. This is different from the assumptions made by Hermann Heinrich Gossen, *Entwicklung der Gesetze des menschlichen Verkehrs, und der draus fließenden Regeln für menschliches Handeln,* Braunschweig 1854.

[51] Joseph A. Schumpeter, *History of Economic Analysis,* New York/NY 1974, 912.

# Part II
# Criteria for Business Administration as a Science

# Chapter 5
# Indicators of a Science and Models of Its Development


**Abstract** Entering the twentieth century business administration gradually establishes itself as a science. Indicators of this science are specific fundamental and operational problems, systematic and controlled procedures to develop new knowledge, and documentation of new knowledge for further use. Examples illustrate the existence of such indicators in the evolving discipline of business administration.

## 5.1 Meanings of Science from Different Perspectives

Over time, the term "science" stands for many different meanings. Etymological dictionaries explain these meanings and document their historical development. While some of the meanings have been completely lost in written language, others are tied to individuals and their state of information. Examples are: "news," "knowledge obtained," or forms of information acquired such as "prudence, insight, understanding" as synonyms of science. Not least because of these roots, no objective meaning of science can be convincingly argued for today. Objectivity would presuppose the general acceptance of scientific statements, at least among those who deal professionally with particular subjects. If, however, all views on a subject were in complete agreement, an essential impulse for the further development of science would be missing. Today, for example, anyone who asks the question of corporate success must conclude that there is no generally accepted definition of this, even if attempting to define it with the same purpose in mind. Therefore, disagreement on terms cannot justify denying a field dealing with such definitional attempts the character of science.

This takes us to another level of meaning, namely science as a "discipline." This, again, has various meanings. In the first place, according to *Grimm's* dictionary, the terms "art" and "science" "overlapped" until the eighteenth century.[1] This is shown by a wealth of evidence, whereby it is particularly noteworthy that the later arising differentiation did not signal any difference in value. Theology, logic, mathematics,

[1] Hans-Werner Bartz et al., *Der digitale Grimm®, Frankfurt 2004. (www.Woeterbuchnetz.de/DWb, accessed February 15, 2021), "Wissenschaft"*. More recently: www.dwds.de.



K. Brockhoff, *Management Ideas*, Contributions to Management Science,
https://doi.org/10.1007/978-3-031-09962-5_5

physics, or philosophy are at times called arts. This is obviously not identical with the strongly experience-based concept of art used today in the sense of creative expression as opposed to the foundation of a science in theory. Still, considering business as an art in the traditional meaning drew business administration into a discussion of its self-understanding in the years after 1911 through an essay by *Eugen Schmalenbach*, who pleaded for the discipline as an experience-based art, an empirical and inductive type of applied business administration: "*I deeply distrust the so-called sciences; they rely on the perfection of the human spirit, and this spirit is not far off. Where you find teaching based on art alongside science, it is safer and more confidence-inspiring*."[2] Of course, you need the human spirit for that, too. Competing "schools" or paradigms in science are considered by *Schmalenbach* as detrimental: "*It* (science, K. B.) *is a history of errors. Certainly, such a science gets ahead, but this goes too slowly at all*."[3] This view was opposed by those who advocated a theoretical basis for business administration: "*Private business science (meaning business administration, K. B.) can be thought of either as a technique, i.e., as an art that chooses the highest possible profitability as its guiding value, as a doctrine of an ideal, or else as a science that considers for itself the generally binding thinking order of empirical reality...*"[4] It is a controversial characteristic of science dealing with normatively set goals or value judgments, regardless of whether it is maximizing profitability or some other standard. A similar discussion emerged when, in the years after 1953, *Konrad Mellerowicz* attacked from a practice-oriented view the theory-based conception of *Erich Gutenberg's* "*Grundlagen der Betriebswirtschaftslehre* (*Fundamentals of Business Administration)*" (Sect. 9.3.2), which had been published in 1951.

In the second place, science is understood as a stand-alone or a comprehensive group of "learned disciplines." Even the restriction to a single discipline opens up a host of further possibilities for differentiation. These include esteem-building adjectives such as advanced, higher, useful, good, sound, correct, infallible, or pure sciences.[5] If one reads arguments against the inclusion of business administration as a department in universities or in fighting out disputes over the allocation of resources between sciences or their subfields, the topicality of such conceptualizations is clearly recognized even in more recent times. For example, in such argumentations, the importance of what is considered pure science vis-à-vis applied science is often of relevance. And business administration as an applied science dealing with autonomous, profit-seeking enterprises can be discredited just because of choosing this research subject.

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[2] (Johann Wilhelm) Eugen Schmalenbach, Die Privatwirtschaftslehre als Kunstlehre, *Zeitschrift für handelswissenschaftliche Forschung,* 1911/1912, Vol. 6, 304–316, here 314.

[3] Ibid.

[4] M(oritz Rudolf) Weyermann/Hans Schönitz, *Grundlegung und Systematik einer wissenschaftlichen Privatwirtschaftslehre und ihre Pflege an Universitäten und Fach-Hochschulen*, Karlsruhe 1912, 53.

[5] Hans-Werner Bartz et al., edts., *Der digitale Grimm*®, Frankfurt 2004 *(www.Woeterbuchnetz.de/DWb, accessed February 15, 2021)*, "Wissenschaft".

The "scientific discipline" of business administration should be further characterized in more detail. At least the following features should be observed:

- The discipline of business administration[6] deals with important questions, problems, or puzzles. In general, it deals with the *efficient and effective use of scarce resources to generate income, the goal-oriented use of income, taking into account uncertainties and the actions of competing interests.* This takes place in organizations, namely *specific types of objects; predominantly, these are profit-oriented enterprises (although public enterprises and non-profit organizations also belong to the objects of business administration).* The particular issues involved may arise from within the discipline or be introduced from the outside. In a comparative sense, the terms supply push and demand-pull have been used to describe the direction of such developments.[7] Depending on where one suspects the more vital forces to be at work, this can have great significance for the design and resourcing of scientific disciplines. Also, fixed boundaries for a discipline cannot be established due to the changing nature of questions arising over time. This can lead to disputes over demarcation lines of disciplines.
- The discipline develops and uses *systematic procedures to* arrive at its answers to problems. In doing so, it can draw on a wealth of methods. An essential part of the philosophy of science is concerned with the development, analysis, and evaluation of such methods.[8] As will be shown, control by systematic procedures, in particular, is an essential characteristic of a science to achieve reliable (free of systematic errors) and valid results.
- The discipline has *techniques* at its disposal *to preserve the knowledge collected so far*, and makes it accessible with a view to different uses and from the perspective of later findings. The preservation of knowledge through systematic oral transmission, by stone engravings, in manuscripts, in print, or through storage on digital media describes merely technical changes of varying effectiveness in storing information. Journals and professional societies exercise knowledge-preserving functions, and, in addition, they can act as control bodies. Therefore, the establishment of a discipline goes hand in hand with founding and preserving such institutions.
- The possible productivity gains by the *division of labor* in the production of goods, impressively described by *Adam Smith* (1723–1790) in his example of pin

[6] The term is used herein in an object-related way. In addition, it is possible to use it in a subject-related way, thinking of a set of people who share specific, disciplinary characteristics.

[7] Jacob Schmookler, *Invention and Economic Growth,* Cambridge/MA 1966.

[8] For example: Helmut Seiffert, *Einführung in die Wissenschaftstheorie,* Vol. 1, 6th ed., München (Munich) 1973; vol. 2, 5th ed., 1973; Klaus Chmielewicz, *Forschungskonzeptionen der Wirtschaftswissenschaft,* 2nd ed., Stuttgart 1979; Günther Schanz, *Einführung in die Methodologie der Betriebswirtschaftslehre,* Köln (Cologne) 1975; Günter Schanz, *Erkennen und Gestalten,* Stuttgart 1988.

production,[9] can, in principle, also be useful in *the production of knowledge.*[10] Whether the division of labor then reaches less far because of the importance of associative learning of individuals than in more straightforward manual activities, as *Alfred Marshall* (1842–1924) thinks,[11] must remain an open question. However, the division of labor makes sense only if the individual components of knowledge can eventually be put together to a greater whole. The coordination instruments for divisional production of goods cannot all or not to the same extent be used for the coordination of knowledge components. This is especially true for coordination via markets because knowledge has, among other things, the property of not being consumed when it is used, or being used, again and again, without incurring marginal costs. Moreover, knowledge is asymmetrically distributed.[12] To reduce the asymmetry of knowledge distribution, it is helpful to build trust and reputation in personal networks[13] to support specific standards of methodology and behavior,[14] for example, through academic societies, or to organize the division of labor and its coordination hierarchically through large organizations (supranational research bodies, ministries, research institutes, companies). *Institutionalization* thus characterizes disciplines.

These are verifiable elements of science,[15] which can be subject to changes in content over time. They will be illustrated in the following chapters concerning business administration. The alternative idea that science begins with the first time use of the term in a book title is not shared.[16]

[9] Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, Vol. I, London 1776, 6 et seq. On the life of Smith: Ian Simpson Ross, *The Life of Adam Smith.* London 1995.

[10] Charles Babbage, *On Machinery and Manufactures*, London 1832, 153.

[11] Alfred Marshall, *Principles of Economics*, Vol. I, London 1890, 313. See also: Charles Babbage, *On Machinery and Manufactures,* London 1832.

[12] A. J. Lotka, The frequency distribution of scientific productivity, *Journal of the Washington Academy of Sciences*, 1926, Vol. 16, 2/161–174.

[13] It is impressive to read how Gottfried Wilhelm Leibniz, despite the hardships of travel, later illnesses, uncertain and long postal routes, builds up and maintains a scholarly correspondence through visits and communications. Careful attention is paid to the quantity and quality of the knowledge exchanged, not least to secure priorities: Eike Christian Hirsch, *Der berühmte Herr Leibniz. Eine Biographie*, München (Munich) 2000.

[14] A good, historical example of this is the large-scale international project of measuring the transits of Venus in front of the Sun in the eighteenth century: Klaus Brockhoff, Virtual global project management in eighteenth-century astronomy, *Journal of Management History,* 2020, Vol. 26, 535–555.

[15] For economics, Joseph Schumpeter developed a very similar catalog of criteria, to which he explicitly adds the scientists as carriers of the processes and their results: *History of Economic Analysis*, 6th ed., New York 1954, 380.

[16] www.elearning.com gives 1911 the starting date because of the publication of "*Scientific Management*" by Frederic W. Taylor (accessed October 30, 2021).

## 5.2 The Existence of Essential Questions as a Characteristic of a Science

Scholars of business administration have repeatedly pointed at essential questions and their possible solutions as one characteristic of business administration as a science. In the first subsection, we present four telling examples that were explicitly meant to demonstrate the character of business administration. In the following subsections, we refer to three very fundamental questions.

### *5.2.1 Four Authors on Important Questions*

It is a strange incident that three scholars of business administration talked about its important questions precisely 35 years apart—which is usually considered one generation. This fact makes it interesting to look at their presentations. More recently, a fourth author continued the ideas of the first.

1. *Alfred Isaac* (1888–1956) does not go into detail. Instead, he describes the object of business administration as "*the enterprise itself, the logistics arteries connecting one enterprise with another, which also includes the nodes (markets), and the people involved*."[17] However, explaining what constitutes a firm or an enterprise is a fundamental question that deserves further research (see Sect. 5.3).
2. *Erich Gutenberg* (1897–1984) was honored to address a primarily academic audience on the occasion of the annual celebration of the University of Cologne's anniversary in 1957 (Fig. 5.1). One should be reminded that even then, many did not recognize the discipline as a science. Therefore, this address offered a fantastic opportunity for explanations. Three problem areas are designated:

   - The enormous inflation that occurred in Germany after the First World War in the 1920s appeared to make the managerial control instruments based on prices totally useless. This affected, in particular, the complete accounting systems of firms. "*It was great luck*" that business administration had scholars who developed schemes to neutralize the inflationary shocks in the balance sheets, cost accounting, and pricing.
   - Since the early publications by *Schmalenbach* in 1899, the theory of the cost curve was developed by answering questions such as: What are the variables that determine the level of costs? In which way do they influence the costs? Can these relationships be quantified? What role has the management to affect the cost level? The answers to these questions led to profound analyses of cost problems to the end of the 1920s and the early 1930s.

[17] Alfred Isaac, *Die Entwicklung der wissenschaftlichen Betriebswirtschaftslehre in Deutschland seit 1898, Berlin 1923 (http://vhbonline.org/vhb4you/klassiker-der-bwl, accessed February 22, 2021).*

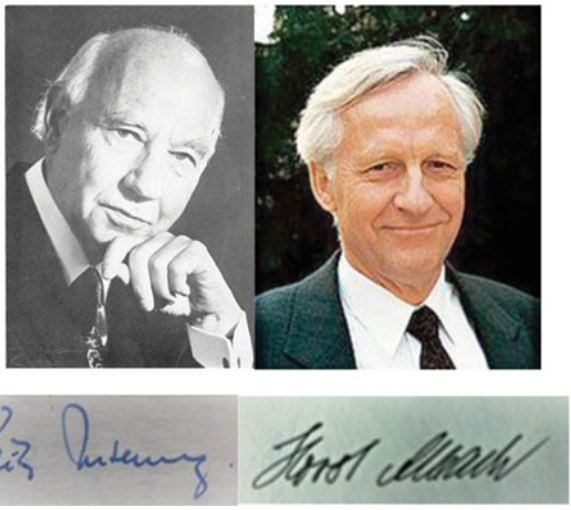

**Fig. 5.1** Erich Gutenberg (left) and Horst Albach (right). Source: By permission of Renate Albach (left) Horst Albach (right), foto by Preker, Münster; signatures: private material

- Sales depend on actions, reactions, and trends. The influencing variables are largely uncertain and can hardly be calculated. Market research became an important instrument to improve the database, and research into exploring the relationships among the variables was making progress.[18]

The word "discipline" is explicitly mentioned in the original presentation. It demonstrates that strong impulses on scientific development originated both from the context of the firms and from within the discipline. While one scholar is explicitly mentioned to represent the second problem area, it may be asked who was primarily responsible for developing the first of the three problem areas. *Gutenberg's* academic advisor *Fritz Schmidt* (1882–1950) comes to mind here.[19] He developed three suggestions to respond to inflationary pressures by analyzing the interplay of entrepreneurial decisions and the economy: Valuating assets at daily prices, buffering inflationary developments by hidden reserves and making them transparent by collecting the effects of price changes in a special sub-account to the capital account.

3. Again, 35 years later, *Horst Albach* (1931–2021) was asked to cover the topic at a conference that tried to assess the situation of German academic business administration in its extant political environment (Fig. 5.1). This was characterized by an enormous inflow of students (paying almost no fees), a grotesque shortage of funds, and court decisions that paid little attention to protecting room for research as compared to teaching. At first, *Albach* described major trends: economic globalization, intensified international competition, spreading the model of a

[18] Erich Gutenberg, *Betriebswirtschaftslehre als Wissenschaft,* Akademische Festrede, gehalten bei der Universitätsgründungsfeier am 22.5.1957, Krefeld 1957, 5–38.

[19] Fritz Schmidt, Die Industriekonjunktur – ein Rechenfehler! *Zeitschrift für Betriebswirtschaft, 2nd special issue,* 1927, 61–72.

social market economy (as practiced in Post-World War II Germany), more female employees, ecological concerns.[20] All of these have repercussions on the management of firms. Differentiating by periods, two groups of specific problem areas are mentioned:

- In the 1960s and 1970s, the optimal use of resources in multi-product firms, with long-term perspectives, and under uncertainty became accessible to business administration. A significant driver was the spread of new methodologies, like Operations Research, and the advent of electronic computers that enabled problem solutions of realistic sizes. Capital budgeting and the theory of finance became hotly debated issues as well as different methods of corporate planning under risk and uncertainty.
- In the 1970s and 1980s, organizational problems and those of governance stood in the foreground. It had become evident that decisions could not be made by individuals alone, and they could not be enforced by them. Thus, questions of team decision-making and delegation of decisions, together with the resulting problems of opportunistic behavior, had to be dealt with. More general, the issues of dynamics, information, and motivation posed new problem areas. The behavior of rivaling actors could be modeled by game theory. *Albach* holds that in all these fields, "*if-then hypotheses could be developed that became subject to logical and experimental testing*."

Both *Gutenberg* and *Albach* were firmly convinced of the importance of a theoretical basis for the development of the discipline. Building a dynamic theory of the firm, operating under a long-term perspective, was the great objective. The discipline could have specific sub-fields or branches such as dynamic pricing theory, dynamic production theory constrained by the use of natural resources, the coordination of multiple objectives, or the theory of business growth drawing on research, development, and innovation.

4. The final example refers back to *Isaac*, if not explicitly, by focusing on the "enterprise" as the object of the field and functions performed by its management, which will become of interest later (Sects. 10.1 and 10.2). The object of business management is developed from business history: "*In the wake of industrialization and the creation of joint-stock companies, extensive large hierarchies emerged and with them came a need for coordination both within each one individually and externally in relation to one another. Chandler*[21] *has demonstrated how, striving for efficiency, owners were driven to coordinate various kinds of their production operations and to integrate these with distribution systems. All this generated a lot of new management problems, which can be said to have*

[20] Horst Albach/Brian Bloch, Management as a science: emerging trends in economic and managerial theory, *Journal of management history,* 2000, Vol.6, 138–157. This is the translation of the original article in German exclusively authored by Horst Albach.

[21] In the quotation, three publications of Alfred Chandler are listed, of which we mention only the eldest: *Strategy and Structure. Chapters in the History of American Industrial Enterprise,* Cambridge/MA 1962.

*provided the building blocks of management education.*"[22] In more detail, the operations and systems are modeled by an interplay of physical flows from external providers through the enterprise's personnel to its customers and a financial flow in a reverse direction. The flows are influenced and coordinated by the actor groups mentioned. Thus, six sub-fields of management problems are identified. Accounting and finance became important with the advent of the joint-stock companies and their demand for external sources of capital. Financial accounting was developed to communicate with the external capital providers and for taxation purposes. Management accounting should contribute to determining cost and revenues to evaluate the efficiency of operations. Pricing had to be understood to develop revenues to meet the objective of the enterprise. Managing physical flows, purchasing from external providers, organization of the enterprise's personnel, and marketing vis-à-vis customers define the remaining three areas of management problems.[23] This model view of management problems can be expanded by referring to more actor groups. Beyond physical and financial flows, those of data, information, and knowledge might be added. This would add realism to the model and, at the same time, point at more fields of management. From the considerations mentioned above of *Gutenberg* and *Albach*, it should also be clear that the specific problems within each sub-field cannot be solved once and for all times because operating enterprises' contextual economic conditions are not stable unaltered in time.

5. To summarize, we find that indeed specific questions exist that delineate the discipline of business administration from others. Until here, these questions were of a character that looked for immediate and practical applications. However, in the following sections, we turn to more fundamental questions of business administration.

### *5.2.2 What Is a Firm?*

We have said above that *Isaac* considered the firm the object of business administration (Sect. 5.2.1). "Firm" is used as a noun to signify a business regardless of its objective or legal structure. The large multitude of types of firms existing in the real world may, first of all, raise some astonishment when asking what in general they have in common, and, secondly, cause frustration because this daily increasing multitude could never be hoped to be captured by the discipline. The answer to the question: "What is a firm?" can therefore only be a theoretical one. But as different scholars look at firms from different angles, they give multiple answers. Let us look at three of these.

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[22] Lars Engwall, The anatomy of management education, *Scandinavian Journal of Management,* 2007, Vol. 23, 4–35, here 7.

[23] Ibid., 8 et seq.

1. In its most abstract formulation, *Gutenberg* would have said that the plant is a production function, namely a combination of factors of production, organized efficiently and effectively with regard to an objective by management ("dispositiver Faktor"). This organization is embedded in an economic system. Independent of the type of system are the factors of production, their combination observing the economic principle of efficient use of scarce resources, and the observation of the financial equilibrium, meaning that at any time, the firm can meet its debts. In a market economy, the firm has autonomous decision-making capacity both internally and externally, principally free access to markets and the objective to make a profit, not necessarily a maximum profit, unless perfect competition prevails. This particular type of firm may be called an enterprise. In a planned economy, however, the economic plans are broken down to an association of firms in one industry or larger firms. The plan determines their decisions. Firms can be loss-planned, which means their operations lead to an accepted loss level, but they should not fail this.[24] This particular type of plant is called plan-determined.

   The view is criticized because the financial equilibrium need not be mandatory in a planned economy and thus could not be independent of the type of system. Also, many cases of bad management could ruin a firm, not only financial decisions. The approach appears to rest on experiences, with no axiomatic basis.[25]
2. As above, *Albach* is interested in differentiating between a plant and an enterprise, although from a different perspective. He strives for what he calls an "axiomatic" characterization. Plants are characterized by resources to enable decision processes, decisions on scarce resources according to a predetermined objective, integrative relationships between employees (which implies communication, orders, formal ways of decision making), and a governance structure. The governance structure determines the degree of autonomous decisions, the formal part of the integrative relations, and the duration planned for the operations. The enterprise is defined via the governance system as the operation governed by the owners of capital.[26]

   The institutionalized view presented here is characterized by the internal relationships and the importance of the governance structure. Interestingly, the definition does not cover a one-person enterprise because it lacks integrative, internal relationships.

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[24] Erich Gutenberg, *Grundlagen der Betriebswirtschaftslehre, vol. 1: Die Produktion,* 10th ed., 1962, 340 et seq., 402.

[25] Dieter Schneider. *Betriebswirtschaftslehre. Bd.4, Geschichte und Methoden der Wirtschaftswissenschaft*, München (Munich)/Wien (Vienna) 2001, 246.

[26] Horst Albach, Betrieb. In: *Sowjetsystem und demokratische Gesellschaft. Eine vergleichende Enzyklopädie*, Freiburg/Basel/Wien (Vienna) 1966, 637–646. Horst Albach/Renate Albach, *Das Unternehmen als Institution. Rechtlicher und gesellschaftlicher Rahmen*. Wiesbaden 1989, 13 et seq.

3. A much more widely accepted definition was developed within the framework of neo-institutionalism. In this case, a firm is defined as "*. . .the nexus of contracts, written and unwritten, among owners of factors of production and customers. These contracts or internal 'rules of the game' specify the rights of each agent in the organization, performance criteria on which agents are evaluated, and the payoff functions they face. The contract structure combines with available production technologies and external legal constraints to determine the cost function for delivering output with a particular form of organization. The form of organization that delivers the output demanded by customers at the lowest price, while covering costs, survives.*"[27]

   Elements of the two views mentioned before can be integrated into this definition, for example, the implicit reference to the production function, the management as a production factor, social influence, decision-making processes, etc. By this view, it has been argued that firms have become virtually unidentifiable because the web of contracts makes them appear "boundaryless."[28] However, it should be borne in mind that in economic terms only those contractual relationships that have a recognizable influence on the value of the company are relevant for a definition. Nevertheless, a much more extensive view is assumed by the so-called Supply Chain Act of 2021 (following EU- and other initiatives) that imposes on German companies the obligation to ensure compliance with specific ethical or social standards along their entire supply chain.

   Depending on which of the defining characteristics is given particular weight for reasons of the respective research question or the section of reality to be investigated, different concepts will be developed and used to define the plant or the enterprise. Thus, if there is a great emphasis on the role of personal relationships, the enterprise or plant will be analyzed as a social system. With a focus on decision-making processes, one will adopt a decision-oriented view of the enterprise or, for example, the enterprise may be considered the locus of strategic decision-making, setting a framework for operations. At the same time, the plant may be the locus of operational decisions. If one discovers that classical business administration does not address the distribution of information within the enterprise and that the information itself seems to be available for free, then to overcome this unrealistic view, one will think of the enterprise as an information-processing system to correct this point. The different propositions give rise to the various "approaches" of business administration (Sect. 5.4).

   These examples illustrate different concepts of what a firm is. It can be seen that each approach looks at its object from a different perspective, and for this reason alone has characteristic limitations.

[27] Eugene F. Fama/Michael C. Jensen, Separation of Ownership and Control, *Journal of Law and Economics*, 1983, Vol. XXVI, June/303–325, here 302.

[28] Arnold Picot/Ralf Reichmann/R. T. Wiegand, *Die grenzenlose Unternehmung: Information, Organisation und Management,* Wiesbaden 1994.

### 5.2.3 *Why Do Firms Exist?*

A definition of firms does not at the same time contain an explanation for their existence. The existence of enterprises, however, not taken for granted, must also be explained causally. Again, different perspectives are developed.

1. Firms could try to escape from perfect competition, which would not allow them any profit and thus threaten their existence. In the extreme, they might approach a monopolistic position, either by their own efforts or in cooperation with others. According to standard models of price theory, this leads to a producer rent. This could be further facilitated if economies of scale would cause revenues to rise disproportionately with increasing size or if other types of barriers to entry are erected. This suggests the hypothesis that the market structure leads to a corresponding firm behavior that explains the comfortable earnings situation and thus the existence of firms.[29] Such developments can only be avoided by government supervision and intervention. These ideas are referred to as the "*Bain explanation*" for the existence of companies. "*Despite ambivalent empirical results and serious questions concerning Bain-type Industrial Organization's theoretical underpinnings, the view of the firm .... continues to have appeal*."[30]
2. The explanation mentioned above is implicitly static: Once a firm's superiority has been achieved, it seems unassailable. Alternatively, companies could exist because they achieve competitive advantages through innovation and attacking the already existing companies, the incumbents. "*Creative destruction*" is the name given to this process by *Joseph A. Schumpeter* (1883–1950). In the chapter entitled with this term ("The process of creative destruction"), he writes that price competition is not what counts in the real capitalist economy. Rather, the competition by introducing new commodities, new technological solutions, opening new sources of supply, or creating new types of organizations attacks existing firms in their very foundations, their life-blood. This kind of competition is as much more effective as bombing would be to breaking down a door.[31] *Schumpeter* further thinks that the risks associated with this business strategy require the attackers to have significant financial strength, which only large companies have at their disposal.

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[29] Joe S. Bain, Relation of profit rate to industry concentration: American manufacturing industries, *American Economic Review,* 1950, Vol. 40, 35–47; Joe S. Bain, Economies of scale, concentration, and the condition of entry in 20 manufacturing industries, *American Economic Review,* 1954, Vol. 44, 15–39.

[30] Kathleen J. Conner, A Historical Comparison of Resource-Based Theory and Five Schools of Thought Within Industrial Organization Economics: Do We Have a New Theory of the Firm? *Journal of Management,* 1991, Vol. 17, 121–154.

[31] Joseph A[loisius Julius] Schumpeter, *Capitalism, Socialism, and Democracy, New York 1942.* On Schumpeter: Richard Swedberg, *Joseph A. Schumpeter. His Life and Work,* Cambridge 1991; Thomas K. McCraw, *Prophet of Innovation. Joseph A. Schumpeter and Creative Destruction*. Cambridge, MA/London 2007.

The fact that this assumption is not compelling has been shown both in an incalculable number of empirical studies and has become clearly visible in the last few decades in the start-up scenery. The "garage companies" of "Silicon Valley" have given rise to large companies in the electronics industry. The same is true of some start-ups using the Internet. In the biotechnology industry, radical innovations often originate in small companies. The real bottleneck for them is building up a production and distribution apparatus on the one hand and guaranteeing security to product users on the other. Therefore, it comes to cooperation with large companies (one of several examples is the BioNTech/Pfizer cooperation in the production and distribution of the COVID-19 vaccine developed by the small BioNTech in 2020). In the extreme, the radical innovator might be taken over. Innovative production and marketing may be alternative explanations for the existence of firms. The start-ups, if they master these growth steps themselves, can become attackers and displace established companies.

Compared with the concept of *Bain,* a new dimension of obtaining competitive advantages and thus justifying the existence of companies is shown here. Innovation, in particular, radical innovation is introduced. It eliminates the reason for the existence of firms whose competitive position is mapped in the supply and demand curves of their traditional markets. This is the "*innovation theory explanation*" for the existence of firms.

3. For a large part of recent business theory, the existence of firms is based on relatively lower costs in a specific sense. The division of labor in producing goods leads to the question of who combines goods into a final product. "*What has to be explained is why one integrating force (the entrepreneur) should be substituted for another integrating force (the price mechanism).*"[32] The entrepreneur obviously incurs costs of production. But coordination through markets, through the price mechanism, is not a free good either because negotiations have to be paid for, external risks have to be calculated, etc. "*We may sum up ... by saying that the operation of a market costs something and by forming an organization and allowing some authority (an 'entrepreneur') to direct the resources, certain marketing costs are saved.*"[33] Thus, an enterprise exists because dispositions of resources in the production and utilization of services within the organization are lower than when markets are used. This idea also explains the maximum size of firms: "*...a firm will tend to expand until the costs of organizing an extra transaction within the firm become equal to the costs of carrying out the same transaction using an exchange on the open market or the costs of organising in another firm.*"[34] This provides the "*transaction cost theory explanation*" for the existence of firms.

[32] Ronald H. Coase, The Nature of the Firm, *Economica,* 1937, Vol. 4, 386–405; quoted here from the reprint in *Readings in Price Theory,* Chicago/Homewood IL 1952, 331–351, here 344.

[33] Ibid., 338. "Marketing costs" are meant here as all costs of using the pricing mechanism.

[34] Ibid., 341.

Building on this view, so-called "hybrid" forms of organizations are explained later,[35] such as cooperations among firms or even networks of companies (see, for instance, the Star Alliance in the aviation industry). Again, this is an aspect that does not occur in the first two views presented above, where the firms implicitly exchange production factors and services with the market partners only - represented by supply and demand functions—and largely independently of each other.

4. The so-called *resource-based theory of the firm* also looks into its inside. It explains the firm's existence because it has specific resources at its disposal that ensure it offering superior products compared with the competition. The superiority may be expressed by price or product quality; in any case, the offering conveys higher utility to the buyer. The resources in question must have four characteristics: valuable, rare, difficult to imitate, and usable by the firm.[36]

   It is, at first, noteworthy that the characteristics of the critical resources are not entirely independent of each other. Furthermore, this approach has been called "pre-paradigmatic" because of the multiplicity of essential features and the lack of integration with a market-based view.[37] However, it could still advance to a paradigm.

   Of course, more approaches can be cited to justify the existence of firms. It is sufficient to have once again presented different perspectives. These are indicative of the specific questions that are characteristic of the discipline of business administration.

### 5.2.4 Who Are the Entrepreneurs, and Why Can They Exist?

Two different views are highlighted here. Entrepreneurs can be characterized by personal characteristics or by functions that they perform:

1. The characteristics of entrepreneurs have been of interest for a long time. One could start, for example, with *Bernardino of Siena* (1380–1444), who demands entrepreneurs to demonstrate "*talent, responsibility, dedication to work, and a willingness to accept uncertainty*."[38] In 1714, honest and blameless conduct, kind and courteous manners and customs, eloquence, decisiveness, and diligence top the list.[39] The extensive catalog includes mental and physical fitness, knowledge

[35] Oliver E. Williamson, *Markets and Hierarchies: Analysis and antitrust implications,* New York 1975.

[36] J. B. Barney, *Gaining and Sustaining Competitive Advantage,* Reading et al. 1996.

[37] Joachim Wolf, *Organisation, Management, Unternehmensführung, Theorien und Kritik,* Wiesbaden 2003, 431.

[38] Dieter Schneider, *Betriebswirtschaftslehre. Bd.4, Geschichte und Methoden der Wirtschaftswissenschaft*, München (Munich)/Wien (Vienna) 2001, 121.

[39] Paul Jacob Marperger, *Nothwendig und nützliche Fragen über die Kauffmannschafft*, Leipzig/Flensburg 1714, 49 et seq.

on bookkeeping and correspondence in the entrepreneur's own and foreign languages, and much more. It may be called a "hero's catalog" of merchant qualities. "*Formation of mind*" as the basis of entrepreneurial action and "*formation of character*" as the foundations of leadership and physical health were held by *Arwed Emminghaus* in 1868 as necessary for an entrepreneur.[40] Recently, roll-calls to execute an honest merchants' behavior have been voiced after scandals of bad management.

2. Such a personal view is not taken here because it is of little interest to business theory. An analysis of functions to be performed by entrepreneurs is preferred. From an economic point of view, persons designated as entrepreneurs must execute functions for other people or institutions that are valued by these and therefore have a price, which enables the entrepreneur to earn an income. There are a plethora of ideas about which functions might justify the entrepreneur's income. From a catalog of 12 functions[41] we extract those that appear to be largely independent of each other:

   - *Accepting risks in general, concerning income, arbitrage in terms of space or quantity of goods*
   - *Advancing innovation*
   - *Being a decision-maker, manager, supervisor, or coordinator of economic resources who allocates them to their best possible use*
   - *Providing capital, especially as the owner of a company; this involves arbitrage in time;*
   - *Exercising leadership in an industry*
   - *Being a partner in contracts*

   These and similar functions are criticized as "essentialist" because they are not posited as aids to problem-solving.[42] The last two functions overlap with the above-mentioned *Bain* explanation and institutional contract theory. The fourth is not very convincing[43] unless it becomes part of the resource-based approach. This leaves us with three functions that will be presented in more detail.
3. Risk acceptance or arbitrage is a major topic in the book by *Richard Cantillon* (1680/1697?–1734).[44] He prefers to deal with a specific type of entrepreneur,

[40] Arwed Emminghaus, *Allgemeine Gewerkslehre*, Berlin 1868 (reprint Cologne 2009), 42.

[41] Robert F. Hébert/Albert N. Link, *The Entrepreneur: mainstream views and radical critiques,* 2nd ed., New York/London 1988, here 107. The authors condense their categories to four.

[42] Thomas Hermann, *Zur Theoriegeschichte des dispositiven Faktors*, Stuttgart 1994, 17.

[43] Briefly and arguing historically, this is explained by (Joseph A.) Schumpeter, Unternehmer. In: *Handwörterbuch der Staatswissenschaften,* 4th ed., Jena 1927, 476–487, here 481.

[44] Richard Cantillon, *Abhandlung über die Natur des Handels im Allgemeinen*, Jena 1931. The original manuscript is entitled: *Essai sur la Nature du Commerce en Général*. Traduit de l'Anglois, Londres 1755, with no author given. In the extensive introduction to the German edition (pp. V to LXVI) by Friedrich A. Hayek, Cantillon's authorship is proven, but at the same time, attention is drawn to the fact that possibly the text existed in French and was printed in France with the title mentioned. This fits with the circumstances of Cantillon's life, which are difficult to reconstruct,

namely the merchant in agricultural products. This can be the tenant of a country estate who may use other entrepreneurs to provide the logistic chain to the city, where the farm products are sold and consumed. The model is understandable because only land and labor are considered factors of production, and the landowners alone are independent by their ownership. The potential buyers in the city cannot keep stocks of the farm products (except for wine, which is explicitly mentioned). Because of fluctuating family size, preferences, and incomes due to daily pay, demand is indeterminate. Entrepreneurs trade goods at a "*certain price according to that of the place where they buy*," "*to be resold wholesale or retail at an uncertain price*."[45] A further factor to be considered is competition:

"*These entrepreneurs can never know the size of consumption in their city, nor even how long their customers will buy from them since their competitors seek by all means to draw customers away from them to themselves; all this causes so much uncertainty among all these entrepreneurs that you can see some of them becoming insolvent every day.*"[46]

It is then argued that due to the division of labor in the production of goods in the city, in principle, every entrepreneur has every other entrepreneur as his customer, so they are mutually dependent on each other. Furthermore, it is shown that profits attract additional entrepreneurs to an industry until a number is reached at which those with the smallest customer base drop out through "bankruptcy." This applies as much to entrepreneurs who need external capital as to those who operate on their own account without capital, namely "*journeymen, craftsmen, tinkers, menders, chimney sweepers, water carriers*," but also the entrepreneurs in the arts and sciences, "*such as painters, doctors, advocates*."[47] "*Even beggars and thieves are entrepreneurs of this kind*."[48] In the state its author imagined, there exist the independent landowners, the dependent entrepreneurs who earn only uncertain profits, and the dependent wage-earners whose income is secure as long as they are employed by the entrepreneurs. The entrepreneurs bear the risks of their trade or arbitrage.

4. Implementation of innovations is a second entrepreneurial function. Static economic activity without innovative initiative characterizes a large number of economic agents called "Wirte (hosts)" or static men. Their business actions are routinized and relatively secure with respect to the expected results (cf. Fig. 5.2).

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including the death of the banker and entrepreneur in London by a murder committed by a dismissed servant jointly with others, and the attempt to cover up the crime by setting fire to his house. In the history of its impact, it is shown that the work had enormous importance before the writings of Adam Smith became widespread, not least as a foundation of economics.

[45] Ibid., 33 et seq.

[46] Ibid., 34.

[47] Ibid., 36.

[48] Ibid., 37.

<table>
<tr><td colspan="5">Entrepreneur as defined in the literature:<br><br>"carriers of the acts of exchange, through which in the market economic organization the economic processes are organized" (1927:481).</td></tr>
<tr><td rowspan="2">Hedonically acting hosts in the static economy with an average profit of zero (1912: 172; 181)</td><td colspan="4">Energetic entrepreneur in the dynamic economy;<br>Exercising "leadership" in the field of economic activity by overcoming external and internal resistance.<br>"new things," i.e., new combinations, are enforced, which enable the creation of future values (1912: 120ff.; 158ff.; 171f.; 1927: 482f.)</td></tr>
<tr><td>factory owner or merchant</td><td>Captain of Industry</td><td>Director</td><td>Founder (promoter)</td></tr>
</table>

**Fig. 5.2** Hosts and entrepreneurs according to Schumpeter. Sources: Joseph A. Schumpeter, Theorie der wirtschaftlichen Entwicklung, Leipzig 1912; Joseph A. Schumpeter, Unternehmer. In: Handwörterbuch der Staatswissenschaften, Vol. VIII, Jena 1927, 476–487

Hosts exist because any implementation of new things is opposed by external and internal resistance.[49] Resistance is overcome by "dynamic action," guided by the motives of "*enjoyment of social power position and the pleasure of creative action.*"[50] This leads to the assertion "*that an entrepreneur is the one who enforces new combinations, for which ...non-hedonic action is as well as always necessary. The entrepreneur is our man of action in the economic field. He is the economic leader, a real leader, not merely an apparent leader like the static host.*"[51]

What are the new combinations? Very succinctly, it is stated:

"*The production and implementation of new products or new qualities of products...*

*The introduction of new production methods.*

*The creation of new industry organizations.*

*The development of new sales markets.*

*The development of new sources of supply.*"[52]

Four types of entrepreneurs are dedicated to implementing new combinations, which differ in the specification of their motives, their background, and the sources of their resources (especially financing) (cf. Fig. 5.3).[53] When *the*

[49] Charles Babbage, *On Machinery and Manufactures,* London 1832, 205. Joseph Schumpeter, *Theorie der wirtschaftlichen Entwicklung,* Leipzig 1912, 120. The American edition appeared much later with minor revisions, based on the second edition in German that occurred in 1926: *The Theory of Economic Development. An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*, Cambridge/MA. 1934.

[50] Ibid., 138.

[51] Ibid., 172.

[52] (Joseph A.) Schumpeter, Unternehmer. In: *Handwörterbuch der Staatswissenschaften,* 4th ed., Jena 1927, 476–487, here 483.

[53] Ibid., 484 et seq.

| Entrepreneurial types | Factory owner, Merchant | Captain of Industry | Director, Manager | Promoter, Founder |
|---|---|---|---|---|
| **Motive** | Providing and caring for family and employees; love for the company | Profit, power, influence, recognition | performance seeking | Introduction of new combinations (innovations) |
| **Selection** | Inheritance, class member-ship | Through share majorities; supervisory boards of banks | Career (analogous to civil servants) | Self-selection; social homeless-ness |
| **Procurement of the production resources** | Property | Without a specific relationship | Management of the owners' capital | Through "mediation" of third parties |

**Fig. 5.3** Types of entrepreneurs according to Schumpeter. Sources: Joseph A. Schumpeter, Theorie der wirtschaftlichen Entwicklung, Leipzig 1912; Joseph A. Schumpeter, Unternehmer. In: Handwörterbuch der Staatswissenschaften, Vol. VIII, Jena 1927, 476–487

Schumpeter entrepreneur is often referred to, it means the *promoter*, founder, or innovator who enforces new combinations. He does not need his own capital but obtains it through third parties. He is not bound socially to the enterprise he starts, as would be the factory owner or merchant. His activity is limited "exclusively to the entrepreneurial function," i.e., to innovate. The other types of entrepreneurs may innovate as well, but this function is not so prominently expressed by these as by the promoter or founder. Unfortunately, this type of entrepreneur does not appear to be very sympathetic. The director or "manager" is assumed to be "interested" in enjoying incentives of some sort while managing the owner's capital.

"*The essence of entrepreneurial profit*" is explained by *Schumpeter* (Fig. 5.4) as the result of "*the introduction of new combinations*."[54] This entrepreneurial profit may only be protected for a limited time only because it can be attacked by "creative destruction." Nevertheless, even in case of failure, the entrepreneur is considered a "risk-taker." "*Here, the lender comes to loss if the thing fails. For although any property of the entrepreneur may be liable, such property is not something essential, but merely incidental*." The risk affects him "*as a financier or as a possessor of property, but not as an entrepreneur. ... He may risk his reputation, but the direct economical responsibility of failure never affects him*." This split of personality or function may be conceivable in the abstract, but it is hardly comprehensible in reality.[55]

[54] Joseph A. Schumpeter, *Theory of Economic Development,* Leipzig 1912, 288. Earlier, this was explained as a necessity of competition: James Lawrence Laughlin, *The Elements of Political Economy, with some applications to questions of the day,* New York 1887, 223.

[55] Ibid., 290.

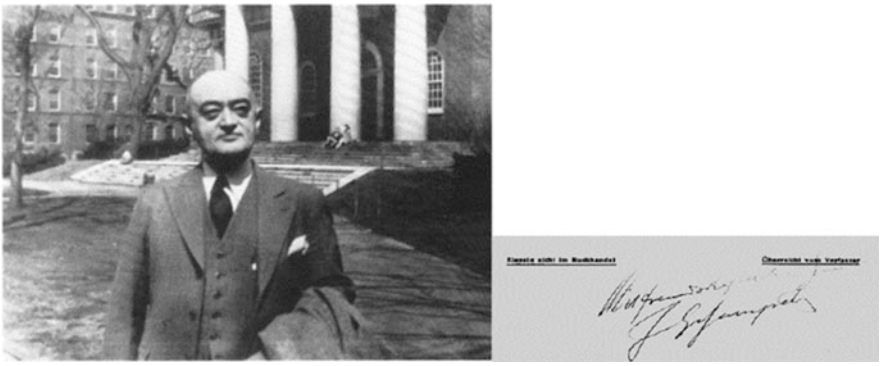

**Fig. 5.4** Joseph Schumpeter on the Harvard Campus and his signature on a dedicated article. Sources: Foto Swedberg 1994; Author

Among the entrepreneurial functions mentioned above is the introduction of new methods of production. This may involve a new combination of factors of production or new organizational methods. In the next paragraph, we will return to this function.

5. The necessity of coordinating the operations separated by the division of labor requires the execution of an entrepreneurial function just as much as the optimal combination of the factors of production concerning a particular objective function of the firm. The necessity of functionally specialized production is explained by *Friedrich List* using the same example of pin production as in *Adam Smith.* He concludes: "*The individual results of the labor of all must be in the right proportion to each other; the workers must live as close together as possible; their cooperation must be guaranteed*."[56] Obviously, this does not arise without managerial efforts.

   The coordination of production factors has an important tradition as an entrepreneurial function.[57] *Alfred Marshall* describes the "*ideal manufacturer*" working for an anonymous market as the "*organizer of production*" and "*leader of men*."[58] *Erich Gutenberg* refers to a management factor that rests with the top business management, whose task is to combine the elementary factors of production (machinery, materials, object-bound labor). "*The combination of the elementary factors ... is the business and economic task of entrepreneurs in*

[56] Friedrich List, *Das nationale System der politischen Oekonomie. Vol.1: Der internationale Handel, die Handelspolitik und der deutsche Zollverein,* Stuttgart/Tübingen 1841, 224. His restless-tragic life is described by: Eugen Wendler, *Friedrich List (1789–1846),* Wiesbaden 2013.

[57] G. Koolman, Say's Conception of the Role of the Entrepreneur, *Economica,* 1971, Vol. 38, 269–286; Thomas Hermann, *Zur Theoriegeschichte des dispositiven Faktors*, Stuttgart 1994, 70 et seq.

[58] Alfred Marshall, *Principles of Economics,* Vol. I, London/New York 1890, 359.

*market economy systems*."[59] This is done by "*conscious human action according to principles*." With respect to business functions, it can be characterized as leadership, planning, organization, and control.[60]

6. The many diverse functions assigned to entrepreneurs or managers call for a more unified view. One attempt at such integration was developed out of critique of the existing presentations by *Dieter Schneider* (1935–2014).[61] Anyone who strives to reduce uncertainty in the acquisition or use of income through the application of knowledge, labor, or assets he calls an entrepreneur. This entrepreneur exercises three functions:

   - First, he establishes institutions to serve the generation of income.
   - Second, he maintains these institutions in markets by seeking arbitrage or speculative profits.
   - Thirdly, he ensures the preservation of the firm internally by using and renewing economic leadership.[62] For this purpose, planning, changes in the organization, and leadership are to be used.

   Although condensed and related to modern finance concepts this explanation has been accused of lacking connection to more recent theoretical concepts of the firm, such as *Coase's* transaction cost theory.[63]

### 5.2.5 Interim Result

We have demonstrated that specific questions of operational character or more fundamental type indicate the existence of business administration as a science. We turn now to a second characteristic indication of a science.

[59] Erich Gutenberg, *Grundlagen der Betriebswirtschaftslehre, Vol. 1: Die Produktion, B*erlin/ Göttingen/ Heidelberg 1951, 5.

[60] Ibid., 7f. Horst Albach, Der dispositive Faktor in Theorie und Praxis, *Zeitschrift für Betriebswirtschaft,* 1990, Vol. 60, 533–548.

[61] Dieter Schneider, *Betriebswirtschaftslehre,* Vol. 4*: Geschichte und Methoden der Wirtschaftswissenschaft*, München (Munich)/ Wien (Vienna) 2001, 511–602.

[62] Dieter Schneider, Neubegründung der Betriebswirtschaftslehre aus Unternehmerfunktionen, *Annals of the School of Business Administration; Kobe University,* 1988, No. 32, 31–47.

[63] Many references in: Thomas Hermann, *Zur Theoriegeschichte des dispositiven Faktors*, Stuttgart 1994, 18 et seq.

**Fig. 5.5** Max Weber. Source: Wikipedia.de, Max_Weber_1894.jpg

## 5.3 Systematic Procedures to Develop New Knowledge: Controlling the Toolbox

Every author quoted in the preceding Sect. 5.2.1 has also talked on the methods applied in business administration. In our view, it is not important here to present an overview of methods applied at one time or another. *Plato* and his way of knowledge generation via dialectic discourses (Sect. 2.1) or *Bacon* deriving knowledge from experiments (Sect. 3.1) have been mentioned only to demonstrate very early developments of methods. Of greater interest is controlling the use of methods. In this respect, we present ideas on freedom from value judgments, falsification of hypotheses, and general prerequisites to exercise control over scientific procedures.

### 5.3.1 Value Judgments

1. The demand to avoid value judgments is a fundamental norm of scientific work. It refers to sociologist *Max Weber* (1864–1920) (Fig. 5.5).[64] It has also been hotly debated in business theory. A very concise presentation and critique of the concept together with a differentiation of the types of value judgments is due to *Hans Albert* (1921-). In his view, three types of value judgments are distinguished: "*Value judgments on the basic domain of science are a prerequisite for any research activity. They arise, for example, from the addressed or practiced commitment to views on the philosophy of science and by the mere selection of research problems. Value judgments in the object area concern scientific statements about values, e.g., about... investigations of firms' objectives. . . . Value judgments in the area of affirmative propositions,. . .are evaluations within the framework of scientific statements about objects.*"[65]
   When discussing the value judgment problem in business administration, it is often suggested that scientific statements must be value-free.[66] Referring to value judgments in the basic domain, it was stated: "*A scientist's personal dispositions and interests determine which questions he will prefer to devote his interests to within the context of the discipline*."[67] At this level, value judgments cannot be avoided. Regarding value judgments in the object domain, it is stated: "*The objectives (of firms, K. B.) must not be postulated by the scientist, but must be taken from reality. They are part of the problem to be scientifically investigated*."[68] Such value judgments must be disclosed. In the area of statements on objects or results of research, value judgments are to be avoided. For example, results should not be qualified as "good" or by similar valuing adjectives.
2. Value judgments on business administration and in the field of business administration are discovered frequently. In particular, so-called normative approaches are a prominent area of value judgments. In the following, we offer examples of such statements.

   (a) An example of the fundamental debate about value judgments is the response of the economist *Lujo Brentano* (1840–1931) to a statement by the director of the still-new Cologne School of Management, which must have been made

[64] Max Weber, *Gesammelte Aufsätze zur Wissenschaftstheorie*, Tübingen 1922 (3rd ed., Tübingen 1970).

[65] Hans Albert, Wissenschaftstheorie, in: *Handwörterbuch der Betriebswirtschaft*, Vol. 3, 4th ed., Stuttgart 1976, cols. 4674–4692, esp. 4687; Hans Albert, *Marktsoziologie und Entscheidungslogik*, Neuwied et al. 1967.

[66] Gerold Behrens, Wissenschaftstheorie und Betriebswirtschaftslehre, in: *Handwörterbuch der Betriebswirtschaft*, Vol. 3, 5th ed., Stuttgart 1993, cols. 4763–4772, here cols 4770 et seq.

[67] Erich Gutenberg, Die gegenwärtige Situation der Betriebswirtschaftslehre, *Zeitschrift für handels-wissenschaftliche Forschung,* 1960, Vol. 12 n. s., 118–129, here 128.

[68] Horst Albach, Betriebswirtschaftslehre als Wissenschaft, *Zeitschrift für Betriebswirtschaft*, supplement 3/ 1993, 7–26, here 9.

on November 18, 1905, at an event of the "*Association of Industrialists of the Cologne District*" in the local Gürzenich Hall: "*Woe to the schools of management if they should generally regard themselves as what the director of studies... of the Cologne school described them, namely as strongholds of entrepreneurship! In this way, they would renounce the scientific character to which they have hitherto laid claim. Whoever wants to serve science must not consider himself to be in the service of any interest. Scientific research knows only one goal: the knowledge of the truth.*"[69]

Here, value judgments in the basic domain are addressed as well as those in the object domain. The latter may not be immediately evident. But it is better understood if one considers that *Brentano* accepted profit-making only under certain restrictions, which he does not see observed by the management schools. "*The justification, indeed the necessity of this drive (to make money, K.B.) I have fully recognized, so far as it coincides with the interests of the society, but not if it is opposed to these interests.*"[70] In a perfectly competitive economy, the condition would be fulfilled, but not in the case of restrictions of competition, particularly by cartels. The problems concern the scholars of business administration very intensively, as will be seen later (Sect. 8.1).

(b) In the 1920s, value-based business administration is vigorously represented, for example, by *Heinrich Nicklisch* (1876–1946) and his followers. It is characterized by a humanistic view of so-called "eternal values," which can be recognized by the "conscience." It follows strict postulates of justice formulated in non-market terms. Freedom from value judgments in the object domain is considered unacceptable. This leads to the following conclusions:

"*The capitalist development of our economic life has linked the concept of profit to that of capital, rather than to that of the creative in life, which is labor. This has been erroneous. This way of thinking has obscured what is principally correct in assigning shares of effect and has allowed owners of capital to pocket more shares than they were entitled to. It is not the existence of capital, but only this injustice, that generated what is called capitalism. It is time for a thorough overhaul of corporation law, especially the paragraphs on the distribution of profits. My remarks are not directed against the private ownership of capital but against the unjust distribution of its total proceeds to those involved. As one of the greatest evils of the time, under the law still in force, appears to be a person who is nothing but a shareholder.*"[71]

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[69] Lujo Brentano, handwritten manuscript, Federal Archives Koblenz N 1001/100 ("*Unternehmer*"), 23 et seq.

[70] Ibid., no page number.

[71] Heinrich Nicklisch, *Der Weg aufwärts! Organisation. Versuch einer Grundlegung,* Stuttgart 1920, here 2nd ed. 1922, 100; preprint of parts of this booklet in: *Zeitschrift für Handelswissenschaft und Handelspraxis*, 1920/1921, Vol. 13, 73–79, 169–173. Heinrich Nicklisch, *Die Betriebswirtschaft*, 7th ed., 1st delivery, Stuttgart 1929, 29: "in the realm of purposeful activities there can be no value-free science, therefore also not in the science of business administration."

This passage need not be judged here in terms of its content. It is astonishing, however, that the idea resurfaced later. In the context of the students' protest wave of the decade after 1968, the most diverse socialist to communist groups attempted to persuade business professors to adopt a sympathetic, value-laden position to denounce the profit motive. Intensive "questioning" in lectures, prepared by wall newspapers and leaflets, as well as coercion to "self-criticism" were instruments to achieve the desired attitude. The attempt to establish a "labor-oriented business theory"[72] by a group sponsored by German trade unions could have been directly linked to the quote from *Nicklisch* reproduced above (which may have been unknown to the authors).

(c) Value judgments at the object level are assumed as well, when rules of good or proper corporate management are not only developed, raised for discussion, and examined for their dissemination but are put forward with a standard-setting claim.[73] Of course, the binding nature of the German Corporate Governance Code through the obligation to apply it in accordance with §161 of the German Stock Corporation Act establishes a value-setting norm. "Comply or explain" can mutate into a binding, legally regulated obligation under sufficiently strong public and political pressure, as it was experienced by demanding the individualized disclosure of executive and supervisory board remuneration. The discussion that began in 2007 about the fairness of management compensation, populistically juxtaposed with the demand for minimum wages based partly on social policy and partly on competition policy, once again demonstrates the consequences of value judgments. The same is true for regulations on opportunities for women to advance to corporations' top management and supervisory bodies. With an "*Act on the Equal Participation of Women and Men in Leadership Positions in the Private and in the Public Sector*" of April 24, 2015, the proportion of women on supervisory boards of listed stock corporations had to be increased to at least 30% of their members.[74] The justification for the law by the Federal Government reads: "*Studies show that a diversity in management bodies ensures better decision-making processes, which can also lead to better economic results*." At first glance, what reads like a statement of undisputed

[72] For example: N. Koubek, Grundelemente einer arbeitsorientierten Einzelwirtschaftslehre, in: Wirtschafts- und Sozialwissenschaftliches Institut des Deutschen Gewerkschaftsbundes, ed., *Arbeitsorientierte Einzelwirtschaftslehre contra Kapitalorientierte Betriebswirtschaftslehre,* WSI-Studien zur Wirtschafts- und Sozialforschung, No. 24, Köln (Cologne) 1973, 69 et seq. Critical, inter alia: Dieter Schneider. *Betriebswirtschaftslehre. Vol. 4, Geschichte und Methoden der Wirtschaftswissenschaft*, München (Munich)/Wien (Vienna) 2001, 250; Klaus Chmielewicz, *Arbeitnehmerinteressen und Kapitalismuskritik in der Betriebswirtschaftslehre*, Reinbek 1975.

[73] For example: Axel von Werder, Management - Mythos oder regelgerechte Kunst? Plädoyer für die Formulierung von Grundsätzen ordnungsgemäßer Unternehmensführung (GoU), *Der Betrieb*, 1995, Vol. 48, 2177–2183.

[74] Bundesanzeiger (Federal Law Gazette), Part I, April 30, 2015, 643 et seq.

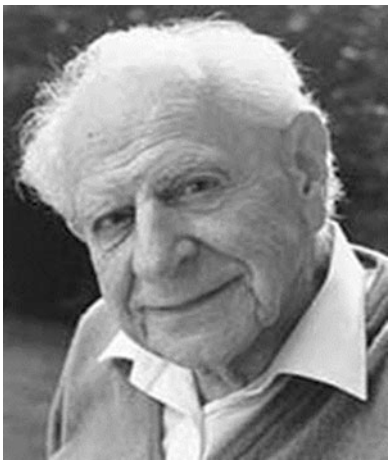

**Fig. 5.6** Sir Karl Raimund Popper. Source: www.univie.ac.at/science-archives/popper/de/index.html

fact is based on selective perception. There are supporting studies, but meta-analyses integrating a large number of impact studies regarding economic variables and innovativeness tend to show no or slightly negative effects of diversity; moreover, these refer to countries with different corporate governance systems and cannot yet include long-term effects. The explanatory memorandum continues: "*Consequently, Germany as a business location and the competitiveness of companies can be enhanced if the proportion of women in management positions increases. This also applies because of the growing demand for skilled workers and given demographic developments. The proposed regulations thus also make economic sense at a macro level.*" Various types of value judgments can be identified in the proposed legislation itself and in this extract from its explanatory memorandum: The legislature's preoccupation with the issue at all, the limitation of the effect of diversity on the proportion of women, the selection of the target criteria or their vagueness, the assessment of the result assumed to be specific for the overall economy. Since the expected further success of filling executive board positions failed to materialize, a new bill (draft: Second Executive Positions Act) was presented on January 6, 2021.[75]

(d) Another standard-setting aspect is illuminated by an appeal published in 2013, which is directed against a perceived methodological one-sidedness in business administration (methodological monism vs. methodological pluralism). Monism seen in the "*statistical-empirical and thus inductive research.*" It should be supplemented by deductive approaches, which are considered particularly suitable for the dialogue between science and practice.[76]

[75] www.bmjv.de, accessed February 18, 2021.

[76] Karlheinz Küting et al., Saarbrücker Plädoyer für eine normative theorie- und praxisbezogene Betriebswirtschaftslehre, *Der Betrieb,* 38/20 September 2013, 2097–2099.

### 5.3.2 *Falsifiability*

After these illustrative notes, we return to the main topic, establishing rules for systematic scientific work. We now refer to verifiability vs. falsifiability of empirically developed knowledge. The controversy over this has been intensely led by Sir *Karl Raimund Popper* (1902–1994) (Fig. 5.6). He argues against the inductive method as advocated by *Francis Bacon* (Sect. 3.1):

> *Now, in my view. There is no such thing as induction. Thus inference to theories, from singular statements which are 'verified by experience' (whatever that may mean), is logically inadmissible. Theories are, therefore, never empirically verifiable. If we wish to avoid the positivist's mistake of eliminating, by our criterion of demarcation, the theoretical systems of natural science, then we must choose a criterion which allows us to admit to the domain of empirical science even statements which cannot be verified. But I shall certainly admit a system as empirical or scientific only if it is capable of being tested by experience. These considerations suggest that not the verifiability but the falsifiability of a system is to be taken as the criterion of demarcation. In other words: I shall not require of a scientific system that it shall be capable of being singled out, once and for all, in a positive sense; but I shall require that its logical form shall be such that it can be singled out, by means of empirical tests, in a negative sense: it must be possible for an empirical scientific system to be refuted by experience.*[77]

Quite similar arguments were already presented much earlier. *David Hume* (1711–1776) denied that causality can be concluded from repeated observations.[78] *Immanuel Kant* (1724–1804), in discussing the limitedness of experience, recognizes that it only reaches an "*assumed and comparative generality (by induction)*," never "*true or strict*," "*so that it must actually be said: as much as we have so far perceived, no exception is found to this or that rule*."[79] *Thomas Hobbes* (1588–1679) wrote on the uncertainty of experiences.[80]

It has often been debated whether the requirements of falsifiability that may be appropriate in the natural sciences in a strict sense of one counter-example shattering a hypothesis should be imposed and met with the same rigor in the social sciences. The variability of human behavior and conscious action recorded in these sciences, in particular, has "*given way to a somewhat more generous view*"[81] in determining the criteria for rejecting a hypothesis. Any line of demarcation for the rejection of

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[77] Karl Raimund Popper, *The Logic of Scientific Discovery,* New York 1959, 40 et seq. (Original edition: *Logik der Forschung*, Wien (Vienna) 1935). Karl Raimund Popper, *Das Elend des Historizismus,* 5th ed., Tübingen 1979, 105. (Original edition: *The Poverty of Historicism*, London 1960).

[78] David Hume, *A Treatise of Human Nature,* Vol. I, 1739 (reprinted by L. A. Selby-Bigge, ed., Oxford 1998), 155 et seq.

[79] Immanuel Kant, *Kritik der reinen Vernunft,* www.sapientia.ch/Buchseiten/philosophie.htm, Immanuel Kant-KritikderVernunft.pdf, 40 (accessed September 23, 2011).

[80] Thomas Hobbes of Malmesbury, *Leviathan, or The Matter, Forme, & Power of a Common-Wealth Eclesiasticall and Civill,* London 1651, 21.

[81] Horst Albach, Betriebswirtschaftslehre als Wissenschaft, *Zeitschrift für Betriebswirtschaft*, supplement 3/1993, 7–26, here 9.

hypotheses presupposes, of course, that they are formulated in a way that they can be rejected in the first place. ("If the cock crows on the dung heap, then the weather will change, or it will remain as it is" does not satisfy this condition. Nevertheless, one finds such propositions repeatedly, especially in dissertations, where they are even passed off as hypotheses). The demarcation line is important not only for intersubjective control of empirical research but also for the individual scientist searching for the superior explanatory model. For this purpose, a wealth of statistical recommendations is available today, which are often presented with the introductory texts on the use of statistical test software.

### *5.3.3 Scientific Control and its Disregard*

The criteria of *value-free* statements and the falsifiability of empirical hypotheses discussed so far do not yet guarantee intersubjective control of the processes of knowledge acquisition. Control is necessary because research results must be reliable and valid as they are used as building blocks in further research. The conditions for control of the scientific processes have been summarized in four points[82]:

*Universalism*: Scientific contributions should be judged according to criteria established before they are written up and independently of their author. They may build on contributions that have previously not been falsified within the accepted error margins.

*Communalism*: Scientific contributions must be disclosed. Only then can they be controlled and eventually become the subject of "organized skepticism" (see below). Failure to observe both can have serious consequences. In the social sciences in the Netherlands, two respected professors were convicted by external analysis and evidence from co-workers of having manipulated data for their empirical work. Both lost their positions. In business administration, a German professor was accused by readers of his publications of false significance levels in regression analyses, committing so-called self-plagiarism, and naming or interpreting variables differently when they were measured identically in different of his publications. He had to leave his university after his habilitation thesis (a qualifying thesis for appointment to a professorship in German-speaking countries in earlier years) was revoked.

*Internal and external freedom:* Scientific activity should not be motivated by third-party interests or involve conflicts of interest. Money and fame are great seducers, as spectacular cases show. In the financial crisis after 2008, it was noticed in the USA that various academics were advocating their advisory recommendations to banks or government institutions in academic publications, but without referring

[82] H. Zuckerman, The Sociology of Science, in: N. J. Smelser, ed., *Handbook of Sociology,* Newbury Park et al. 1988, pp. 511–574; here, the author refers to a 1942 work by Robert King Merton (1910–2003).

to advisory activities, which could lead to a conflict of interest. In 2012, the *American Economic Association,* therefore, adopted a policy requiring authors of journal articles published by the association to declare potential conflicts of interest or having received valuable support that may have affected the article submitted.[83] The "*Verein für Socialpolitik (German Economic Association)*" has adopted a similar regulation that is binding for its members.[84] The disclosure of possible conflicts of interest is today standard practice for most scientific journals.

*Organized Skepticism*: Through criticism, knowledge can be clarified, expanded, or secured. In principle, this presupposes refutability. The role of expert referees (so-called peers, hence also peer review) in assessing publication requests or funding applications constitutes part of the system of organized skepticism.[85] This may lead to detecting plagiarism.[86] Special software is available and used to check for plagiarism, which is often used routinely in academic institutions. However, it can be doubted whether these precautions are sufficient for this purpose. The doubts weigh heavier since artificial intelligence generates articles on diverse subjects that might pass peer review successfully. In more recent times, self-plagiarism, where subsequent publications fail to refer to directly comparable earlier publications by the same author, has been similarly outlawed. The reason is that it could weaken the efficiency of scientific work because the later publication would not achieve the same degree of novelty justifying its publication.

These criteria are not entirely mutually independent. Communalism can become a problem in interaction with internal freedom if, for example, personal advantages can be gained through secrecy. It is evident that prior publications are detrimental to patenting because they deprive the character of novelty, which is a supposition to grant a patent by the authorities. This can lead to a reluctance to publish, at least until after the patent application is filed. Many other situations are easily imaginable, such as the use of putative findings in consulting.

Another interaction is that of communalism with organized skepticism. A high reputation earned by a researcher might reduce the level of skepticism in reviewing her or his experimental results or their manuscripts. Experiments have demonstrated that a large number of already published papers in top journals and by scholars with high reputations, when resubmitted anonymously, are recognized by the reviewers as already published only in a very small proportion and are rejected for the most part on methodological grounds. Skepticism is not fail-save. Double-blind review, as practiced by many organizations, has come under critique. On the one hand,

[83] http://www.aeaweb.org/aea_journals/AEA_Disclosure_Policy.pdf (accessed April 12, 2014).

[84] http://www.socialpolitik.de/De/ethikkodex (accessed January 2, 2015).

[85] Admittedly, it must be acknowledged that the reliability of these assessments is not very high. To summarize: Dean Keith Simonton, *Creativity in Science, Chance, Logic, Genius and Zeitgeist,* Cambridge 2004, 84 et seq.

[86] A particularly serious case from the social sciences had to be pointed out - albeit with a time lag - by the editors of the journal "Research Policy." The irony here is that the plagiarist H. G. himself was plagiarized: Ben R. Martin, Keeping plagiarism at bay - A salutary tale, *Research Policy,* 2007, Vol. 36, 905–911.

blindness is not guaranteed if specialization increases and fields of science become pretty narrow. On the other hand, organized skepticism was strengthened by the development of search engines. This way, plagiarism, and self-plagiarism can thus be detected and stopped more easily.

Internal and external freedom is questioned in the case of participatory observation, which is considered as a qualitative research method. Cases are known where this method invited to manipulate results such as to conform with the preferences of the researchers.

Replication studies or analyses of published results (also about the appropriateness of methodologies) go beyond the quality assurance function of independent journal reviewers. Since 2004, such investigations can be published, in particular, in the special interest journal *Econ Journal Watch.* It even operates a kind of pillory. Those who do not react to published error notices are pilloried. Partly building on the above criteria and extending them, academic associations, funding agencies, or publishers have established rules for good scientific practice.[87] Violation of rules is scientific misconduct that can even take on more extensive, criminal forms (e.g., destruction of experimental facilities, prevention of access to literature). Types of scientific misconduct and the possibilities of their detection are covered by *Sönke Albers* (1948-).[88] Admittedly, he concedes that there is or can be no detection of misconduct with certainty. Since publications are necessary for researchers to start or advance their careers, there will also arise efforts to circumvent the arrangements for detecting misconduct. Why should this be any different here from elsewhere in life?

A lack of rules or their application is an invitation to misconduct. However, there is also the deliberate rule-breaking, the so-called "postmodern relativism," which considers all knowledge as individualized.[89] According to this view, organized skepticism is impossible. This view falls back to a notion of science as used in earlier centuries (Sect. 5.1). More serious, from our point of view, is instrumentalism. According to it, in theories, hypotheses are linked to observations as if by tools. The *Duhem-Quine* thesis says that researchers have many possibilities of such linkages, so they themselves, in turn, influence the results of their work. *Karl Popper* would probably have pointed out here that the individual researcher, even then, could come to decisions about which is the more reliable linkage by applying principles like falsifiability.

The choice of methods can be a subject of methodological fashion. Management fashions make decisions easier and less risky because managers and consultants point at the zeitgeist and what every other "knowledgeable" manager applies as

[87] Hansrudi Lenz, Scientific ethics and publishing conduct, *Journal of Business Economics,* 2014, Vol. 84, 1167–1189.

[88] Sönke Albers, Preventing unethical publication behavior of quantitative empirical research by changing editorial policies, *Journal of Business Economics,* 2014, Vol. 84, 1151–1165.

[89] Composer Gustav Mahler is reported of having argued that every melody imagined in his head is his property because it is his own head, regardless of the melody's origin.

well.[90] Similar observations can be made concerning the application of research methods. Notable examples are quantitative analyses of business problems and the tide of Operations Research[91] methods or Game Theory after the 1950s. Operations Research (Operational Research in British English) originated from the activities of mathematicians during World War II. It spread almost exponentially from 1947 onward. *George Dantzig*, who contributed substantially to Linear Programming[92] remarked: "*The final test of a theory is its capacity to solve the problems which originated it.*" However, as another contributor confessed in retrospect: "*We made the globe a cube to solve our problems easier.*" Game Theory had its origins in 1928 but was made popular from 1944 onward.[93] When peers, reviewers, funding agencies, search committees adopt a fashion, it is difficult to publish research that apply diverging methods. This reduces the breadth of approaches and possibly also correct results.

### 5.3.4 Interim Results

The conclusion to be drawn in the final part of this section is similar to the previous one: There is a pronounced development of methods to acquire business knowledge systematically. Business administration develops new methods itself as well as makes use of those developed in other disciplines. To bring some of the methods to fruitful applications, specific tools have to be at hand. We have made this explicit when presenting the work of *Leibniz* on compound interest (Sect. 3.2). In the same sense, electronic computing made applicable some of the methods of quantitative research. Thus, questions can be accessed that were previously closed off. This is yet another way in which the boundaries of the discipline are changing.

With the development of new methods, the need to test their correct application has become increasingly important. The scientific community has reacted to this in various ways. One danger, which can only be avoided by appropriate training, is that many primarily empirical methods and mathematical functions are now supported

[90] A. Abramson, Management fashion, *Academy of Management Review,* 1996, Vol. 21, 320–333; Paula Phillips Carson et al., A historical perspective of fad adoption and abandonment, *Journal of Management History,* 1999, Vol. 5, 320–333. Alfred Kieser, Moden und Mythen des Organisierens, *Die Betriebswirtschaft,* 1996, Vol. 56., 21–39. Alfred Kieser, *Wissenschaft und Beratung* (= Schriften der Philosophisch-historischen Klasse der Heidelberger Akademie der Wissenschaften), Heidelberg 2002, 59.

[91] George B. Dantzig, *Linear Programming and Extensions*, Princeton/NJ 1963. On Dantzig: gap-system.org/~history/Biographies/Dantzig_George.html (accessed October 10, 2011).

[92] Among other things, he developed the Simplex Method to solve problems with linear objective function and linear constraints in the form of inequalities.

[93] John (Janoš) von Neumann/Oskar Morgenstern, *Theory of Games and Economic Behavior*, Princeton/NJ 1944. On predecessors: Dieter Schneider, *Betriebswirtschaftslehre.* Vol. 4*, Geschichte und Methoden der Wirtschaftswissenschaft*, München (Munich)/Wien (Vienna) 2001, 435 et seq.

and provided by software. This encourages careless applications compared to situations where each method had to be programmed and implemented by the researcher. This initiated careful thinking on the appropriateness of the method to be applied. An example of carelessness is disregarding the scale level of data when using analytical software. The difficulties of mastering the method alongside mastering the object of study are responsible for the fact that nowadays, more than in the past, publications show multiple authorships.

## 5.4 Preservation of Knowledge or the Cost of Forgetting

### *5.4.1 The General Problem*

Building on the foundations of predecessors is one useful road to scientific knowledge because it is more efficient than re-inventing the same foundations. This advancement of knowledge is called cumulative. To make use of it, one assumes that knowledge is preserved and made accessible to those who follow. Whether this can be achieved depends on the character of cumulative knowledge, specific techniques for storage, and existing institutions that support both (like journals, scientific associations, etc.).

In earlier centuries and millennia, the use of cumulative knowledge was difficult. It was constrained by not easily traveled geographical distances, the lack of a common "language of science" or limited documentation possibilities. In addition, knowledge may get lost because we are unable to express it. *Michael Polanyi* (1891–1976) coined the term "tacit knowing" to explain "*that we can know more than we can tell*."[94] The example most often mentioned is the attempt to explain in abstract words how to ride a bicycle to another person once it has been learned. When such explanations fail, it limits the cumulation of knowledge. The inability to explain has encouraged learning through direct observation and, therefore, the concentration of specific crafts or skills in particular places. Schools of thought might exist for the same reason: Observing and discussing with a master could transfer knowledge to students much easier than reading papers. Alongside - with the common reinterpretation of "tacit knowing" as "tacit knowledge" - originates an unwillingness to transfer knowledge for reasons of self-interest. *Georg Christoph Lichtenberg* (1742–1799), is right with his aphorism: "*The cosmographers will admittedly not find a north-western passage (i.e., the way from Europe to Asia past the North Pole, K.B.), but the fur traders will. One would be much further ahead even in philosophical matters if one could arrange the investigations in such a way that the spice or fur trade would be promoted by them*"?[95] However, cosmographers

[94] Michael Polanyi, *The Tacit Dimension,* London 1966, 4.

[95] Georg Christoph Lichtenberg, *Einfälle und Bemerkungen, Heft J,* 1789–1793, No. 114, Berlin/Weimar 1975, 138.

could be expected to share their knowledge quickly, despite a more extended search time; fur or spice traders could not be expected to do so because this would eliminate individual competitive advantages. In the third place, expected costs of knowledge storage and knowledge transformation have to be considered. High expected costs can lead to "tacitness." One hopes to remember an item without storing it by taking notes, etc. because this appears to be too cumbersome. But soon it might be forgotten. A related aspect is that articulation of knowledge is not seen as efficient or not seen as effective because not recognizably suitable for other problems.[96]

Even in the eighteenth century, censorship, physical loss of printed material, or incomplete archiving could lead to permanent loss of knowledge, especially as there were not yet any discipline-specific institutions to counteract. Knowledge was "precarious."[97] This and the increasing volume of knowledge prompted collections of knowledge, compiled and controlled by experts, in major encyclopedias, for example:

Johann Heinrich Zedler, ed., *Grosses vollständiges Universal-Lexikon Aller Wissenschaften und Künste...,* 1st edition, Halle (later Leipzig) 1732–1754 (www.zedler-lexikon.de).

Denis Diderot/Jean-Baptiste d'Alembert, eds., *Encyclopédie ou Dictionnaire raisonné des Sciences, des Arts et des Métiers,* 1st edition, Paris 1751–1768 (reprint Stuttgart-Bad Cannstadt 1988).

Society of Gentlemen in Scotland, eds., *Encyclopaedia Britannica,* 1st edition, Edinburgh 1768–1771.

Even today, the preservation of knowledge is not perfect, despite a multitude of technical storage options and an established systematic education and training in business administration. Transferring knowledge from one technical storage solution to its next generation is sometimes difficult or simply overlooked. Referring only to that part of knowledge that is available in electronic form can be a substantial constraint. That is why a history of ideas is important, which tries to overcome such constraints systematically. Let us look at some examples of loss of knowledge.

### 5.4.2 Loss of Knowledge in Business Administration

1. The "*Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel*" (usually called the Nobel Prize in Economics) was awarded to *James A. Mirrlees* and *William Vickrey* in 1996. It honored "*their fundamental contributions to the economic theory of incentives under asymmetric information*."[98] This included

[96] Concerning the globalization of R&D, this differentiation was first developed in Allen W. Pearson/ Klaus Brockhoff/Alexander von Boehmer, Decision Parameters in Global R&D Management, *R&D Management*, 1993, Vol. 23, 249–262.

[97] Martin Muslow, *Prekäres Wissen. Eine Ideengeschichte der frühen Neuzeit*, Berlin 2012.

[98] www.nobelprize.org. Press release of October 8, 1996. Accessed October 23, 2021.

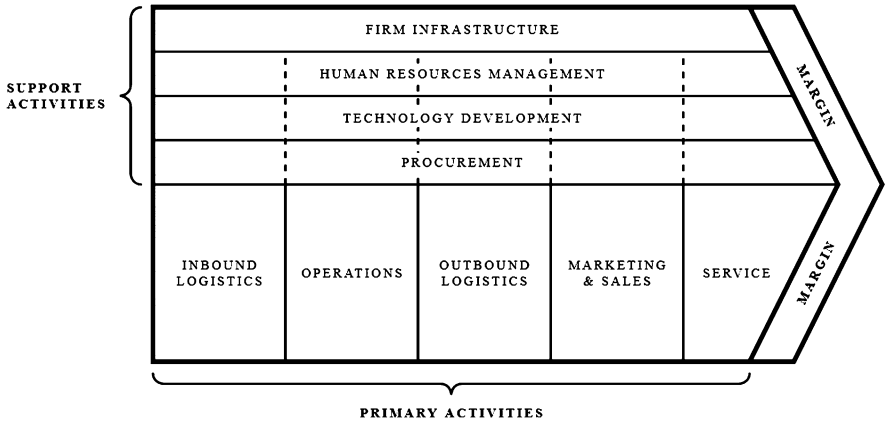


**Fig. 5.7** Element of Porter's value chain model. Source: Michael Porter, Competitive Advantage, New York 1985

the scheme of the second-price auction or *Vickrey*-Auction. Four years earlier, economist *Manfred Tietzel* discovered that this scheme had already been used obviously by intuition by the poet *Johann Wolfgang von Goethe*.[99] He was interested in extracting the highest price possible from publisher *Hans Friedrich Vieweg* to print and publish his play "*Hermann und Dorothea*." In *Goethe's* letter of January 16, 1797, to the publisher, he states: "*As far as the fee is concerned, I am sending Mr. Böttiger, senior consistorial councilor, a sealed billet containing my demand, and I am waiting to see what Mr. Vieweg thinks he can offer me for my work. If his offer is lower than my demand, I take back my sealed note unopened, and we have no deal; if it is higher, I demand no more than what is recorded in the note then to be opened by Mr. Böttiger*." Unfortunately, *Böttiger* did not quite play by the rules of the game and tipped *Vieweg*.[100] The principle of the second-price auction, however, is recognizable and cannot be questioned.

2. The second example is much more comprehensive. Students and managers interested in strategic management will be familiar with *Michael Porter's value chain model.*[101] It aims to provide an analytical tool that allows to identify the causes of competitive advantages and shape them advantageously. The analytical tool is the "value chain." A company is thought to be embedded hierarchically

[99] Manfred Tietzel/Benny Moldovanu, Goethe's Second-Price Auction, *Journal of Political Economy,* 1998, Vol. 106, 854–859; Benedikt Fehr, Von Goethe erdacht, von Ebay genutzt: Zweitpreis-Auktionen, *Frankfurter Allgemeine Zeitung,* December 22, 2007.

[100] Karl August Böttiger (1760–1835) apparently also plagiarized parts of the yet unpublished drama "Wallenstein," as poet Friedrich Schiller complained: Hans Hattenhauer, ed., preface to an edition of Bötticher's *Literarisches Leben auf der Universität Kiel,* Neumünster 1978, 6.

[101] Michael E. Porter, *Wettbewerbsvorteile (Competitive Advantage). Spitzenleistungen erreichen und behaupten,* Frankfurt 1992, 49–80. English original: Competitive Advantage. Creating and Sustaining Superior Performance, New York/NY 1985.

**Fig. 5.8** Heinrich Nicklisch, ca. 1910, and his signature. Source: Unknown frontispiez

between suppliers and customers in a "value system." Fig. 5.7 shows one element of the value chain and its structure.[102]

According to Porter, "value activities" are carried out in the company. First of all, "primary activities" are to be considered, including inbound logistics, operations (i.e., production activities), outbound logistics, marketing and sales, and customer services. They are linked to four categories of "supporting activities." These are procurement, technology development (product and process improvements), human resource management, and the provision of business infrastructure. The latter include management, finance, etc. Each category of activities comprises direct, indirect, and quality assurance tasks, the first two being distinguished according to the immediacy of their relationship with customers. The activities are ultimately directed toward enabling and, if necessary, increasing the profit margin.

*Porter's* model has been widely disseminated in academia and practice. It has been perceived as fundamentally new. However, this is surprising if one goes back in time in the business management literature and comes across the books by *Heinrich Nicklisch* (1876–1946) (Fig. 5.8).

[102] Ibid., 74.

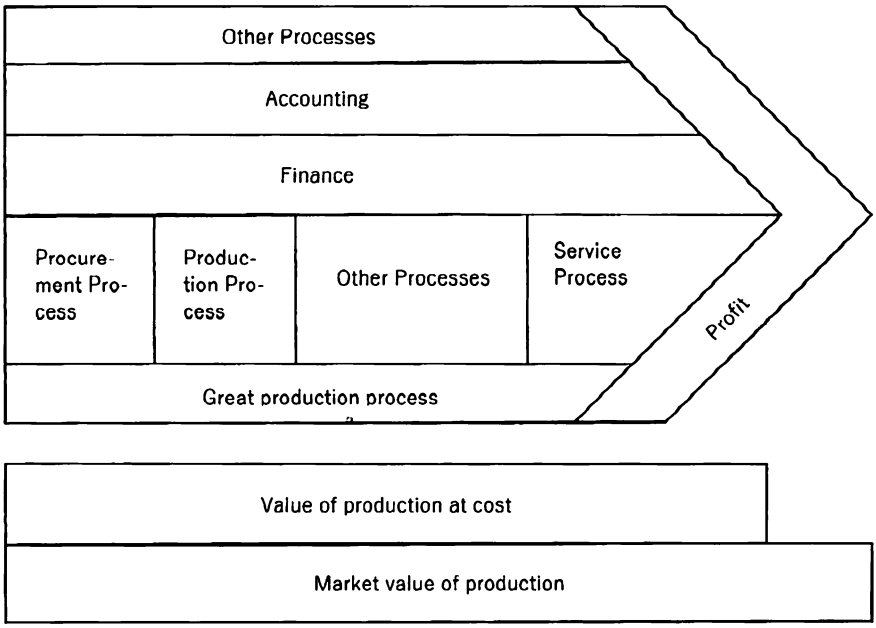


**Fig. 5.9** The business process model by Heinrich Nicklisch. Source: Drawn after Nicklisch's text

Valuation problems of assets and their solution represented at his times an important topic of the discipline.[103] *Nicklisch* presented the results of his studies on these problems, however, using expressions that are deemed less precise or less catchy than today. This was an obstacle to a broad, application-oriented dissemination of the concept. In contrast to *Porter,* the aim of his research is not to guide strategic management but rather win basic understanding of the problem area at large. As with *Porter*, the object of consideration is the autonomous enterprise that exists because of the division of labor and that is embedded in economic processes surrounding it. With these, it entertains exchanges of money and monetary valued goods or services.

Within the company, *Nicklisch's* unit of observation is a "process," not an "activity," as in *Porter's.* The business process (Fig. 5.9) comprises the operations set in motion to meet the company's purpose. Some of these processes are considered to be "paramount," namely: Procurement, production (in what is called a narrow sense), sales, and revenue distribution. While the first three are already known as primary activities in *Porter's* model, *Nicklisch* adds the fourth process. The first three processes are summarized under the term "production

[103] Heinrich Nicklisch, Der Betriebsprozess und die Wertumläufe in der Wirtschaft, *Zeitschrift für Handels-Wissenschaft & Handelspraxis,* 1927, Vol. 20, 21–125; Heinrich Nicklisch, *Die Betriebswirschaft,* 7th ed., Stuttgart 1932.

process in the broader sense." It stands "on an equal footing" with the revenue distribution process, which absorbs the counter-value of the business output, the revenue. For the production process in the broader sense to provide the business output by the "internal circulation of value," "money stocks" are required, i.e., financing. This corresponds to one of *Porter's* secondary or supporting activities. "From earnings," the company's production factors are remunerated, i.e., wages and salaries are paid to employees, and profits are distributed to owners, thus starting the "external circulation of value," which enables the arising demand for the outputs of the company.

The value of production is determined by the production process in the broader sense or the "great production process." It is not equal to the "market value," which depends on "the quality of management" and is "*a variable unknown until the market decides on the product*." The difference that occurs between market value and the value of production is the profit. The conditions for a positive profit are the existence of markets, the existence of individual needs that are matched by the management on the markets with the supply, and the division of labor. In essence, *Nicklisch* had all the elements of *Porter's* value chain model. What is more, is the explicit link with the markets via the earnings distribution process.

In no way is it insinuated that *Porter* had known of this close relationship. It is merely brought to attention that perhaps some model development effort could have been applied to another and perhaps better use had the earlier research become known.

3. The idea of maximizing a "*shareholder value*."[104] rests on discounting future cash flows from operating activities, a planning period, and an interest rate or discounting factor.[105] All these elements are already present in earlier works.[106,107] As before, the language used and the intention of the presentations are different from those of later times. Even more, some popularized representations and insinuations that the original concept would recommend short-term action are far removed from the ideas of its principal author, *Alfred Rappaport*. He clearly recommended a long-term "share building strategy" over a short-term "harvesting strategy." Again, this could be discovered quickly by referring to the original literature. As an indication of this development, we have contrasted the relative frequency of the search terms "shareholder value" with "*Alfred Rappaport*" (the latter multiplied by 10, to make it better visible) in Google

[104] Alfred Rappaport, *Creating Shareholder Value. The New Standard for Business Performance,* New York/London 1986. Alfred Rappaport, Selecting strategies that create shareholder value, *Harvard Business Review,* 1981, Vol. 59, 3/139–149.

[105] Rolf Bühner, Der Shareholder Value im Spiegel traditioneller betriebswirtschaftlicher Bilanzansätze, in: Hans-Ulrich Küpper/Ernst Troßmann, eds, *Das Rechnungswesen im Spannungsfeld zwischen strategischem und operativem Management. Festschrift für Marcell Schweitzer,* Berlin 1997, 28–41.

[106] Wilhelm Rieger, *Einführung in die Privatwirtschaftslehre,* Nürnberg (Nuremberg) 1928.

[107] Erich Kosiol, *Pagatorische Bilanz,* Berlin 1976.

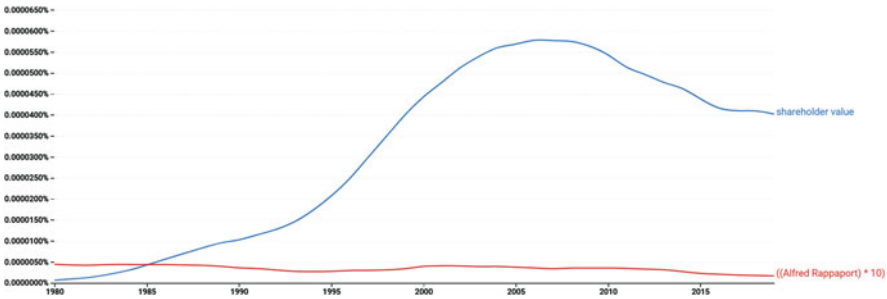


**Fig. 5.10** Relative frequency of the terms "shareholder value" and "Alfred Rappaport" in the English language literature documented by Google, 1980–2020. Source: Google ngram, created October 30, 2021

Ngram (Fig. 5.10). Since 1981, when *Rappaport's* paper appeared in Harvard Business Review, the frequency of mentioning his name remained relatively stable over time. However, the frequency of the term shareholder value rose sharply until about 2007 and went down later. The diverging curves could signal that the term shareholder value detached itself from the meaning coined by Rappaport and could thus assume interpretations that do not correspond with the original.

4. The concept of "*economic value added*"™ as a measure of corporate value is derived by *Stern* and *Stewart* from the annual balance sheet by applying a large number of adjustments.[108] It is even legally protected. It shows whether the net operating profit exceeds the weighted average cost of capital. This idea has been known for a very long time: "*We may briefly say here that when a man is engaged in business, his profits for the year are the excess of his receipts from his business during the year over his outlay for his business. ...What remains of his profits after deducting interest on his capital may be called earnings of undertaking or management.*"[109] It is not difficult to find other representatives of the same concept in the literature.

### *5.4.3 Interim Results*

The examples chosen demonstrate that the preservation of business knowledge and its use is by no means perfect.[110] Conversely, the large number of citations in

[108] Joel M. Stern/John S. Shiely/Irvin Ross, *The EVA Challenge. Implementing Value Added Change in Organizations,* New York 2001.

[109] Alfred Marshall, *Principles of Economics,* London 1890, 142.

[110] Looking through the extensive work by Dieter Schneider, *Betriebswirtschaftslehre,* Vol. 4*:Geschichte und Methoden der Wirtschaftswissenschaft, München (*Munich)/Wien (Vienna) 2001, one gets the impression that this author succeeds in naming an earlier source for almost every concept in business administration.

scientific publications on business management indicates that earlier knowledge is used to quite some degree and is not entirely lost. However, it is limited. In addition to the causes for the loss of knowledge already mentioned, earlier knowledge tends to remain unused if it is stored in a language that appears to be outdated. If knowledge is stored using a technique that is not "upward compatible" (to use this expression from information technology) with more recent storage media, it will easily remain unused. It can be observed, for example, that literature not recorded in today's electronic search systems is hardly ever discovered or used. Furthermore, changes in the meaning of terms and how a language is used can also make it difficult for later generations to use earlier knowledge. As for the control of good scientific practice, professional associations can play an important role in keeping memories of earlier research alive and accessible.

# Chapter 6
# Scientific Progress in General and in Business Administration


**Abstract** Sciences advance by interactions of people, demand from unsolved problems, supply of new methods, and chance events. This advance is not exclusively "linear" from basic research to application. The same applies to management ideas and their development by science. In dealing with business problems, "normal" or traditional approaches may not suffice. This may motivate the search for "scientific revolutions" or new approaches that consider problems from new and different perspectives. In business administration, this has generated a number of alternative approaches.

The question of the advancement of science, its change of subject matter and methods, is the concern of a great deal of research. The first issue is whether knowledge is generated exclusively in an academic environment or also in direct contact with its applicants. For business administration, the latter is a standard procedure, notwithstanding occasional developments from pure theory without the immediate intention of an application. A second issue concerns value judgments (Sect. 5.3.1). In particular, the degree of autonomy in selecting topics and methods is the researcher's responsibility for both vis-à-vis third parties, including the financial sponsors, and respective research institutions. We have noted above how these questions could be answered. The third bunch of questions relates to efficient and effective procedures of knowledge production (For a critical overview, see: Laurens K. Hessels/Harro van Lente, Re-thinking new knowledge production: A literature review and research agenda, *Research Policy,* 2008, Vol. 37, 740–760). This includes inquiries into the roles of individuals versus groups as well as the role of evolutionary versus radical innovation in advancing science. We do not plan to answer all these questions in this context. Rather, we present selected ideas related to business administration as it appears to develop into a science.



K. Brockhoff, *Management Ideas*, Contributions to Management Science,
https://doi.org/10.1007/978-3-031-09962-5_6

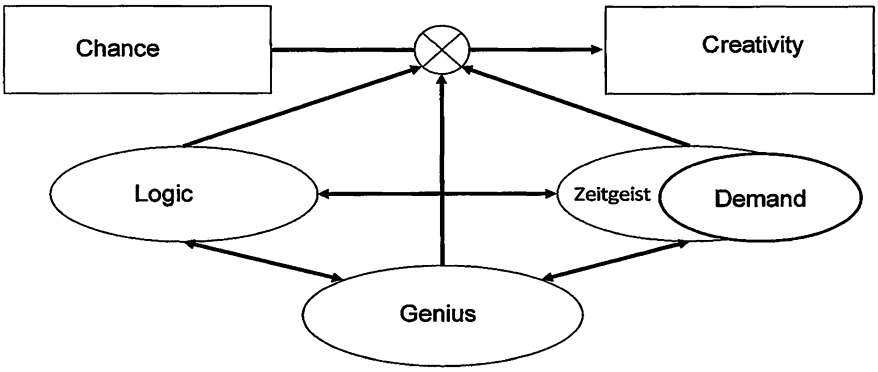


**Fig. 6.1** Sketch of Simonton's ideas on individual creativity. Source: Based on Simonton, Creativity in Science, 2004

## 6.1 The Individual

The singular steps to new knowledge are taken mainly by individuals. "*Creative thinking is a scarce resource, but it comes in fairly inexpensive man-sized lumps . . .*"[1] However, the initiation and the progression of creative processes vary between individuals substantially. This was nicely demonstrated from interviews of scholars in organizational science.[2] It is not possible here to go into the tangle of debates about which share of creativity is genetically inherited versus the share acquired in the course of personal development by learning.

*Simonton* argues that individual creativity can arise above all by the interaction of chance, logic, genius, and zeitgeist.[3] The analysis of statistical information about scientist's publications as an indication of their creativity on the one hand and the observation of multiple or repeated discoveries, on the other hand, lead him to conclude that none of the variables mentioned is solely sufficient to explain creativity (Fig. 6.1). The great importance of chance events for taking up a question, the course of the mental processes leading to its solution, or the role of spontaneous inspirations let him assign a particularly prominent role to chance: "*Chance must be*

[1] Frederic M. Scherer, *Industrial Market Structure and Economic Performance,* Chicago/IL. 1971, 356. See also: Kenneth Arrow, Economic Welfare and the Allocation of Resources for Invention, in: Richard R. Nelson, ed., *The Rate and Direction of Inventive Activity,* Princeton/NJ 1962, 609–625; Friedrich A. von Hayek, *Die Verfassung der Freiheit,* 3rd ed., Tübingen 1991, 43.

[2] Ken G. Smith/Michael A. Hitt, *Great Minds in Management – The Process of Theory Development,* New York/Oxford 2005: 30 authors report on their theory development, from which the editors draw summary conclusions in an "Epilogue: Learning to Develop Theory from Masters" (ibid., 572–588).

[3] Dean Keith Simonton, *Creativity in Science. Chance, Logic, Genius and Zeitgeist,* Cambridge 2004.

*considered the primary basis for scientific creativity*".[4] This is somewhat surprising. However, it is conceded that chance interacts very closely with "genius," which can almost become identical. To recognize chance requires mental preparation. Briefly, it has been said, "*Discovery commences with the awareness of anomaly ...* "[5] "Awareness" is essential here because it signifies the psychological process by which an anomaly is recognized. This can involve a lack of explanations by conventional approaches. Following this recognition, all the other variables mentioned also interact. "Genius" is determined by personal qualities but would not be sufficient on its own in the absence of interaction with the zeitgeist and with the logic, i.e., procedures of systematic knowledge acquisition. "Logic" includes methodologies for knowledge acquisition. The influence of "technology push" is also to be integrated here, when creative impulses come from the availability of new methodologies. "Zeitgeist" interacts with both the solution method and with what is called a "demand-pull": A currently perceived problem and the need to solve it at all or in a better way. Parallel engagement in solving specific problems is occasionally explicitly mentioned as an effect of the zeitgeist. An example is provided at the beginning of a publication by economist *Edmund S. Phelps* on economic growth: "*4 years ago, I presented a theorem on maximal consumption in a golden age [1961]. The same theorem was discovered and published by Allais [1962], Desrousseaux [1961], Mrs. Robinson [1962], Swan [1964], and von Weizsäcker [1962] ... Mention should also be made of an unpublished paper by Beckmann [1961] ... and the dissertation by Srinivasan [1962] ... All these authors made the finding independently, circa 1960*".[6]

The variables mentioned exert a moderating effect on the relation between chance events and scientific creativity in *Simonton*'s ideas. Figure 6.1 attempts at illustrating the relationships. This underlines the fact that developments at the level of entire disciplines have their basis in the individual.

The individual approach should not negate the fact that individuals can increase their creative performance by interacting with others and their environment. The teaching of creativity techniques is full of—albeit not always empirically tested—indications of this. Brainstorming, for example, draws its synergies from the critique-free interaction of people. Bionics supports people in their search for solutions through the selective observation of nature.[7] A further indication of cooperations is that many publications appear under the name of several authors.[8] It appears that this has become more frequent in recent years as a consequence of

[4] Ibid., 161.

[5] Thomas S. Kuhn, *The Logic of Scientific Discovery,* Chicago/IL. 1962, 52.

[6] Edmund S. Phelps, Second Essay on the Golden Rule of Accumulation, *American Economic Review,* 1965, Vol. LV, 793–814, here 793.

[7] James C. Kaufmann/Robert J. Sternberg, edts., *The Cambridge Handbook of Creativity*, Cambridge University press 2019; Vlad Petr Glaveanu, *The Creativity Reader*, Oxford/New York 2019.

[8] See Rita Bissola/Barbara Imperatori, Organizing Individual and Collective Creativity: Flying in the Face of Creativity Clichés, *creativity and innovation management,* 2011, Vol. 20, 77–87.

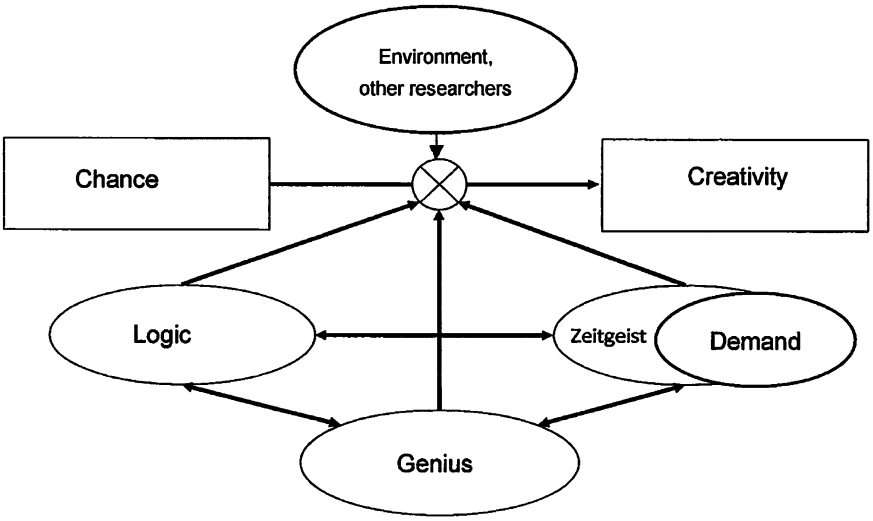


**Fig. 6.2** Extension of Simonton's model

more complex problems, high demands of mastering methods, and disciplinary specialization. Occasionally, even the publication of a single author is viewed at particularly critically. In this context, cooperation across linguistic boundaries poses particular challenges that cannot be solved by referring to electronic information exchange alone. Taking these aspects into account, the representation of *Simonton*'s model has been extended, as shown in Fig. 6.2.

## 6.2 The Discipline

During the Second World War, American President *Franklin D. Roosevelt* followed a recommendation by *Vannevar Bush* to establish a *"National Defense Research Committee"* under his leadership. "*To a remarkable degree, it succeeded in bringing the nation's strength in science and engineering to bear in the war*"[9] Nevertheless, the establishment was controversial among the administration, politicians, and the public. For a time after the war, Senator *Harley M. Kilgore* proposed the establishment of a *"National Science Foundation"* as an alternative to continuing the committee. Being concerned about the role of *Bush*'s institution in the postwar period compared with the proposed alternative, *Bush* inspired a letter written by the President on November 17, 1944. In this letter, *Bush* is asked by the President to comment on questions concerning the organization of science after the war. As a

[9] Donald E. Stokes, *Pasteur's Quadrant, Basic Science and Technological Innovation*, Washington/D.C. 1997, 47.

result, *"Science, the Endless Frontier"* was written.[10] It proposes the establishment of a *"National Science Foundation*," which should, in particular, provide government support for pure or basic research as the essential, long-term source of technological innovation. While the proposed organizational measures, especially regarding the competencies of the "*National Science Foundation*," were severely curtailed, the presented model of a causal nexus of basic research to technological innovation triumphed: basic research fertilizes applied research and the latter the development of technologies as a basis for techniques. This is called the *linear model* of scientific development or—more narrowly—of technology transfer. Setbacks in the technological race during the "Cold War" (especially in missile and space technology) led the American Department of Defense to initiate "*Project Hindsight*".[11] It was shown that the linear model for the development of weapons systems offered no convincing explanation. The "*National Science Foundation*" promptly answered with their view of things. TRACES *("Technology in Retrospect and Critical Events in Science")* used five examples (ferrite magnets, videotape recorders, oral contraceptives, electron microscopes, interruption of chemical reactions by so-called matrix isolation) to show that while the linear model does not always apply but often enough such as not to abandon it[12]—and thus also to continue the tasks of the "*National Science Foundation.*" Nevertheless, enough voices were raised, and enough evidence was collected to justify alternatives to the linear model.

For business administration, too, the question arises whether the linear model is generally valid or not. The question is relevant because, according to this model, a theory is typically developed in basic research, technology in applied basic research or development, and technology is cast into techniques as practical applications arise. This could lead to an explicit specialization of institutions or individual researchers performing particular steps in the linear process, which could initiate institutions specializing as in *Bacon*'s model (Sect. 3.1). However, by looking at decision research as a subfield of business administration, it could be shown that every form of temporal causality can be found between theory, technology, and technique.[13] This observation argues against the strict validity of the linear model of scientific development. What is the alternative?

*Donald Stokes* has replaced the linear model with the idea that is shown in Fig. 6.3. Existing knowledge by assumption can stimulate both basic research and

[10] Vannevar Bush, *Science – the Endless Frontier. A Report to the President on a Program for Postwar Scientific Research*, Washington/DC. (NSF) 1945 (reprint 1960).

[11] U.S. Department of Defence. Office of the Director of Defence Research and Engineering, ed., *Project Hindsight*, Final report AD 495905, Washington/DC 1969.

[12] Illinois Institute of Technology Research Institute, *Technology in Retrospect and Critical Events in Science*, National Science Foundation Contract C535, Vol. 1 1968; Vol. 2 1969. This is not the place for a critical discussion of methodology. Counting events, as done in the report, as they occur in publications, adding them up, and arranging them on the timeline presents several problems. In later years, "science of science" research addressed such problems.

[13] Klaus Brockhoff, Entscheidungsforschung und Entscheidungstechnologie, in: Eberhard Witte, ed., *Der praktische Nutzen empirischer Forschung,* Tübingen 1981, 61–77, here 69 et seq.

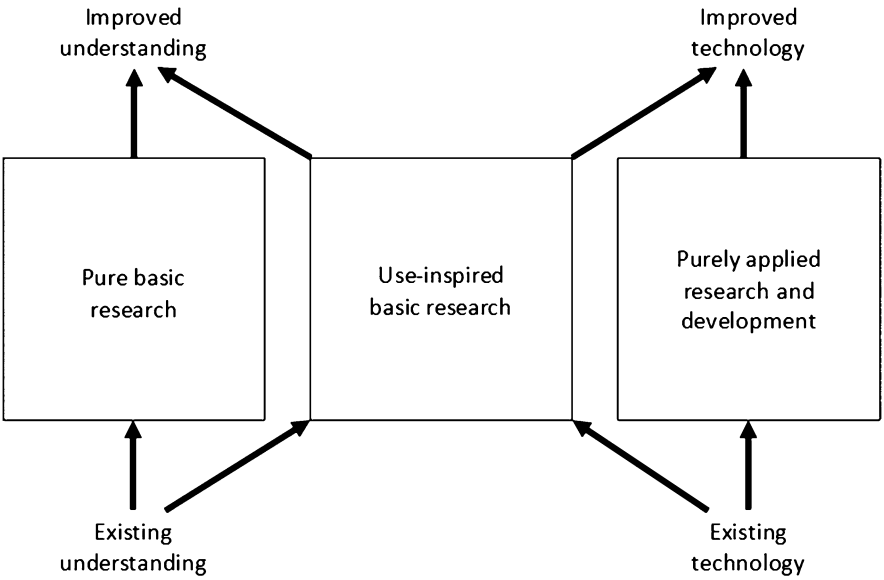


**Fig. 6.3** The "revised model" of scientific advance according to Stokes

application-oriented research (use-inspired basic research). Known techniques and technologies—the terms are not generally separated in American usage—affect both application-oriented basic research and pure application engineering and development in the same way. New understanding emerges from basic-oriented research activities, and new technological knowledge emerges from application-oriented basic research and development. If we view the figure as relating to a time period and the arrows as developments over time, it becomes clear that according to this model, each research type can stimulate and provide prior knowledge to any other. This "revised dynamic model" (Fig. 6.3) is quite different from the linear model.[14]

The model has yet another advantage. It allows for methodological diversity because it is committed neither to induction nor to deduction. It thus recognizes that either way is possible for a discipline to progress. Methodological disputes, if they are conducted to dominate one approach over another, are thus superfluous. Admittedly, the methods must be subject to criteria such as those given above with universalism, communalism, avoidance of conflicts of interest, and application of an organized skepticism (Sect. 5.3.3).

[14] Donald E. Stokes, *Pasteur's Quadrant, Basic Science and Technological Innovation,* Washington/ D.C. 1997, 88. Similar ideas were advanced earlier: Charles Babbage, *On Machinery and Manufactures,* London 1832, 207.

**Fig. 6.4** Thomas S. Kuhn. Source: Alexander Bird, wikipedia.org

## 6.3 Scientific Advance by Solving Puzzles

By what "coincidence" does a scientist come to contribute to scientific progress via research? "Existing understanding" and "existing technology," the two labels of the state of knowledge from *Stokes*' Fig. 6.3, are used to answer the questions together with "genius" and "zeitgeist." In other words: there are "puzzles" to be solved with the existing knowledge, which constitutes the patterns or "paradigms" of cognition. This is how *Thomas S. Kuhn* (1902–1994) (Fig. 6.4) describes it, at least concerning the natural sciences.[15]

When the puzzles can be solved without contradiction to the known solution paradigms, this expands the stock of knowledge by "normal science." From the point of view of the development of science, this is relatively unspectacular. From a practical point of view, it can be very significant. Thus, "*scientific achievements* (grow, K. B.)*, achievements that some particular scientific community acknowledges for a time as supplying the basis for its further practice*".[16] While the emergence of paradigms that are compared with other paradigms more potent in providing solutions is seen as a sign of the maturity of science, at the same time, it is not required that *all* members of a discipline adopt the more advanced paradigm as a means of solving the puzzles they perceive. Nor need a paradigm be complete in the sense that it would allow to *"... explain* all *facts with which it can be confronted*".[17] In the following Fig. 6.5, we illustrate this development by the perpendicular path to "normal science" on the left-hand side.

If, however, a solution cannot be found along this path, only a "scientific revolution" with new methodological rules, patterns, or paradigms can open up the

[15] Thomas S. Kuhn, *The Structure of Scientific Revolutions*, Chicago/London 1962.
[16] Ibid., 10.
[17] Ibid., 18.

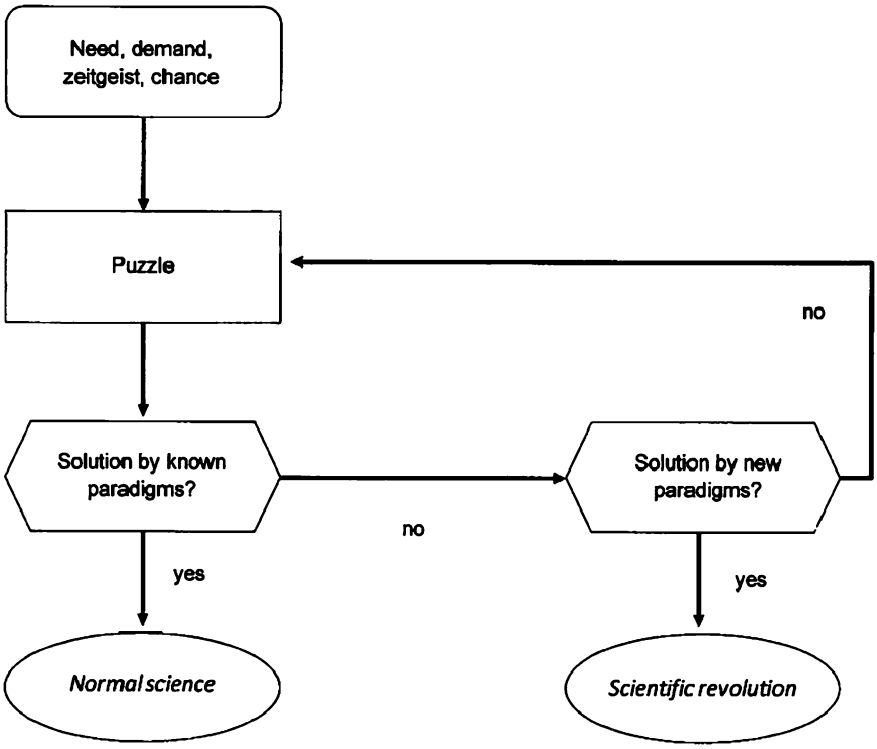


**Fig. 6.5** The model of scientific advance according to Kuhn

prospect of a solution to the puzzle. *Kuhn* describes in more detail "*the recognition that nature has somehow violated the paradigm-induced expectations that govern normal science. It then continues with a more or less extended exploration of the area of anomaly. Moreover, it closes only when the paradigm theory has been adjusted so that the anomalous has become the expected.*"[18] The scientist is not left with solving puzzles alone but must now additionally test new paradigms. The result need not invalidate *all* prior knowledge. Finally, however, the new paradigm found appears to be spectacular. Its discovery will be less common than the development of "normal science." And it will face the resistance that typically confronts innovation.[19] The scheme that describes the path to the "scientific revolution" is shown in Fig. 6.5 on the right-hand side.

These ideas have given and still give rise to scientific controversy. They partly contradict other views, for example, those of *Karl Popper* (Sect. 5.3.2), they are fuzzily formulated, and the possible incomparability (incommensurability) of

[18] Ibid., 52f et seq.

[19] Bernard Barber, Resistance by Scientists to Scientific Discovery, *Science,* 1961, Vol. 84, 596–602.

paradigms makes it difficult to imagine something like cumulative knowledge growth. This is deferred here, primarily since much has been written about it.[20]

## 6.4 A Model for Business Administration?

Can these ideas of scientific advancement in the natural sciences be a model for the development of business administration? This is plausible to assume if, first of all, the question of the existence of paradigms is put aside. A tiny hint is given by explicitly mentioning puzzles as a starting point for a scientific revolution: "*The imperfect-monopolistic competition revolution* (in the 1930s, K.B.) *was the end result of puzzling by many minds over a problem that Marshall had started but he has been unable to solve satisfactorily—the existence of downward-sloping cost curves for individual firms.*"[21] Pricing theory of imperfect competition solved the puzzles that could not be solved by classical price theory, which implicitly assumed competition with homogenous goods.

Using the example of the development of strategic management, a very similar idea of advancement of science has been put forward and substantiated—albeit without explicit recourse to *Kuhn*.[22]

Let us take the liberty of bringing these ideas into as close an agreement as possible with *Kuhn's* model. Figure 6.6 shows the result. In *Hermann's* conception, strategic management questions are first attempted to be answered within the framework of an accepted body of knowledge, the dominant solution design. If this remains unsatisfactory, a discontinuity is indicated. A fermentation period begins to spread a new concept if superior answers to the dominant design are found. In this period, the previous design is replaced by a new design that appears to be superior. In our view, this describes the core of *Kuhn's* model in new terms and applies it to a specific problem of management science.

Now, however, the question asked earlier must still be answered as to whether an essential element of *Kuhn's* model, the paradigm, can be recognized in business administration. *Kuhn* himself was not sure whether his model applied to the social sciences because corresponding paradigms, distinguished by high consensus within

[20] Uwe Rose, *Thomas Samuel Kuhn: Understanding and Misunderstanding. Zur Geschichte einer Rezeption,* Diss. Univ. Göttingen 2004.

[21] Harry G. Johnson, The Keynesian Revolution and the Monetarist Counter-Revolution, *The American Economic Review*, 1971, Vol. 61, 1–14, here 2 et seq.

[22] Pol Hermann, Evolution of strategic management: the need for new dominant designs, *International Journal of Management Reviews*, 2005, Vol. 7, 111–130. The author chooses literature on technology management as a starting point, in particular: M. Tushman/L. Rosenkopf, Organizational determinants of technological change: toward a sociology of technological evolution, *Research in Organizational Behavior*, 1992, Vol. 14, 311–347.

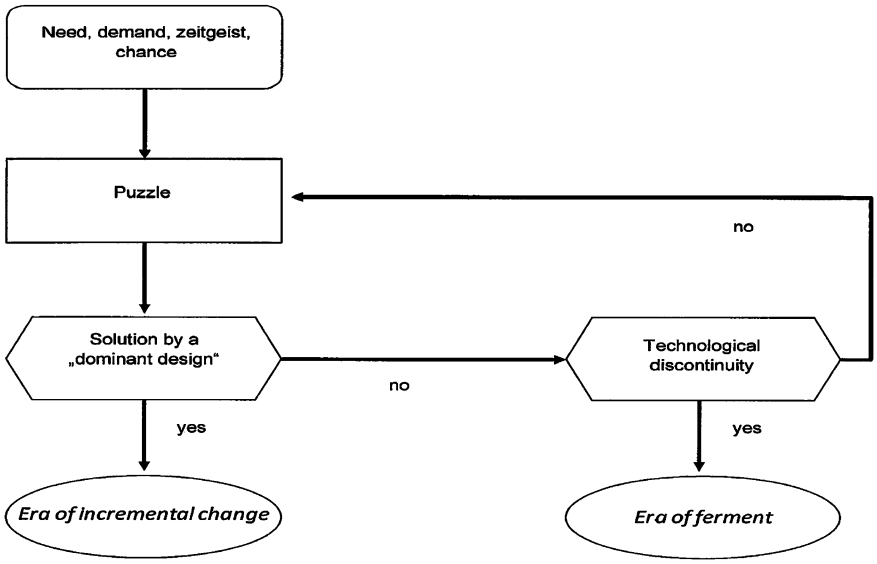


**Fig. 6.6** The evolutionary model on strategic management by Hermann

the discipline, might be lacking: "*it remains an open question what parts of social sciences have yet acquired such paradigms at all*".[23]

*Dieter Schneider* is radically dismissive for several reasons: (1) the term paradigm is not clearly defined in *Kuhn*'s work, (2) Kuhn substantially changed the original meaning of paradigm in later editions of his model, (3) the model is directed at dynamics of theories, not of technologies, which, however, are in the foreground in business studies, (4) a common empirical basis among members of the discipline is lacking.[24] He concludes: *Kuhn*'s theory belongs "*into the scientific wastepaper basket, from which many will help themselves for a while*".[25] In our view, this overstates possible critique. For instance, a core of shared understanding of some paradigms seems to exist, business administration is not only concerned with developing technologies, and *Kuhn* did not ask each and every scientist in a discipline to subscribe to a paradigm, as indicated above. In contrast, *Joachim Wolf* (1957-) goes particularly far by asserting that *Kuhn*'s ideas "*apply to a very remarkable degree in the social sciences. This assumption can be justified by the fact*

[23] Thomas S. Kuhn, *The Structure of Scientific Revolutions,* Chicago/London 1962, 15.

[24] Dieter Schneider, *Allgemeine Betriebswirtschaftslehre,* 3rd ed., 2nd reprint, München (Munich)/Wien (Vienna) 1994, 184 et seq. Dieter Schneider, *Betriebswirtschaftslehre. Vol.4, Geschichte und Methoden der Wirtschaftswissenschaft*, München (Munich)/Wien (Vienna) 2001, 402 et seq.

[25] Ibid., 186.

*that there is a lack of absolute (emphasis added, K. B.) standards of advancement of knowledge*".[26]

Many other business scholars share the latter view and point at the mere existence of paradigms as they understand them. Sometimes, these may be called "approaches"as well:

> In the fifties, Erich Gutenberg's productivity-oriented approach gained wide acceptance in business administration. In the following years, research in business administration was essentially based on this approach. In the seventies, however, attempts were made to replace this "productivity-oriented paradigm." Then, in addition to the productivity-oriented paradigm, the following approaches are used in German business administration
> - The decision-oriented approach
> - The system-oriented approach
> - The coalition theory approach
> - The behavioral approach
> - The normative-ethical approach
> - The IT-centered approach
> - The 'invisible hand' approach
> - The action-theoretical approach
>
> representing different paradigms, albeit mainly unrelated to each other and usually in contradiction to each other.[27]

The dynamic extension of the productivity-oriented approach by including "*customer relations, supplier relations and bank relations allows for a seamless integration of other theoretical approaches*" without developing new paradigms.[28] However, is this "normal science," and what exactly would be its frontiers? Expansion of an approach may not apply to all of them. We cannot present all of these approaches here and in detail; some of which are presented otherwise.[29]

As mentioned above, the implementation of a "scientific revolution" encounters resistance. This leads to the question of what characteristics distinguish a new paradigm that has a good chance of surviving from "normal science." A thoroughly sarcastic answer to this question has been attempted in economics in order to explain, on the one hand, the strength of the Keynesian revolution, which has become "normal science, " and, on the other hand, the monetarist counter-revolution as an example of a "scientific revolution".[30] As a precondition for success, it is stated that both approaches, even if they cannot solve the given puzzle convincingly,

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[26] Joachim Wolf, *Organisation, Management, Unternehmensführung. Theorien und Kritik,* Wiesbaden 2003, 402 et seq.

[27] Horst Albach, Betriebswirtschaftslehre als Wissenschaft, *Zeitschrift für Betriebswirtschaft,* supplement 3/1993, 7–26, here 16.

[28] Horst Albach, *Allgemeine Betriebswirtschaftslehre,* 3rd ed., Wiesbaden 2001, VIII.

[29] Gert H. von Kortzfleisch, ed., *Wissenschaftsprogramm und Ausbildungsziele der Betriebswirtschaftslehre,* Berlin 1971; Günther Schanz, *Eine kurze Geschichte der Betriebswirtschaftslehre,* Konstanz/München (Munich) 2014, 42 et seq.

[30] Harry G. Johnson, The Keynesian Revolution and the Monetarist Counter-Revolution, *American Economic Review,* 1971, Vol. 61, 1–14.

should harmonize with the zeitgeist: "*fitting appropriately into the intellectual climate of its time*".[31] Then, five additional conditions have to be met:

> First, it (the revolutionary innovation, K.B.) had to attack the central proposition of conservative orthodoxy ... with a new but academically acceptable analysis that reversed the proposition.
>
> Second, the theory had to appear to be new yet absorb as much as possible of the valid or at least not readily disputable components of existing orthodox theory. In this process, it helps immensely to give old concepts new and confusing names ...
>
> Third, the new theory had to have the appropriate degree of difficulty to understand .... The new theory had to be so difficult to understand that senior academic colleagues would find it neither easy nor worthwhile to study ... At the same time, the new theory had to appear both difficult enough to challenge the intellectual interest of younger colleagues and students but actually easy enough for them to master adequately with a sufficient investment of intellectual endeavor.
>
> Fourth, the new theory had to offer to the more gifted and less opportunistic scholars a new methodology more appealing than the currently available.
>
> Finally, ... the advancement of a new and important empirical relationship, suitable for determined estimation by the budding econometrician.[32]

These remarks should be interpreted "with a grain of salt." The author does not discuss whether they can be generalized at all, particularly whether they can be generalized to business administration. However, knowing some of the methodological disputes in the field, one can hardly deny that the five or six items make statements that apply to this subject as well. It is also known that the implementation of a "new theory" is accompanied by personal attacks or disparagement as well as by the formation of conspiratorial "schools" with their own rites. This also brings sociological aspects into play. According to this view, high creativity is attributed to those members of a group who form the core of the group.[33] From there, the innovation can be brought forward with mutual support. Of course, the new must also be advertised. Thus, science marketing becomes a strategy in the rivalry between different paradigms. This may explain why truth and usefulness of theoretical statements (*Francis Bacon* is recalled here) do not necessarily occur coupled. True and useless statements are trivial, untrue and useless are mirages, useful and untrue erect dazzlers; the bright spots of useful and true statements are sought that have to stand the tests mentioned above.[34]

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[31] Ibid., 8.

[32] Ibid., 4,5,9.

[33] R. Collins, *The Sociology of Philosophies: A Global Theory of Intellectual Change,* Harvard, MA. 1998.

[34] Klaus Brockhoff, Leistungen der Betriebswirtschaftslehre für Wirtschaft und Gesellschaft. In: Anton Egger/Oskar Grün/Reinhard Moser, eds, *Managementinstrumente und -konzepte. Entstehung, Verbreitung und Bedeutung für die Betriebswirtschaftslehre,* Stuttgart 1999, 27–62, here 42 et seq.

## 6.5 Purposes of Science

*"Reason is the pace; e (i)ncrease of Science, the way; and the Benefit of man-kind, the end,"* where science is considered reasonably explained if-then relationship among "facts" or "affirmations".[35] Recently, the purposes of science have been described more differentiated:

- Development of definitions of the scientific objects. Definitions cannot be true or false. However, they should be concise and purposeful. They help to include or exclude particular objects from observation.
- Description of the characteristics of objects. This helps to determine the very existence of objects. Objects could also be imagined instead of being real.
- Development of hypotheses to relate objects to each other. Hypotheses have the form of "if-then" expressions. They must be formulated such that their falsifiability can be tested. In earlier years, "if" and "then" were represented by individual variables. Today, "if" can be a vector, and "then" a matrix. The relationships can be linear or non-linear, static or dynamic.
- Specific non-refuted hypotheses can be used in forecasting. Forecasting presents probabilistic statements for the future of an object within a time period. The probability statements are constrained by the assumption of an unchanged structural context of the hypotheses. Even under this condition, a forecast can become self-destroying by influencing behavioral decisions.
- Forecasts lay the foundation for decisions to act in a specific way. Because forecasts are conditional, so are the decisions based on them.[36]
- Actions design the future. It is argued that more advanced designs are created from "*praxis rather than detached observation*,"[37] and an "*interplay of action and analysis, theory and practice*".[38] Experiments are considered essential instruments to arrive at an exploratory type of social sciences,[39] which in our view includes business economics.

This is not altogether unknown to business science. It is consistent with *Stokes's* (Sect. 6.2) model, and Gutenberg reflects it in developing new paradigms to solve pertinent puzzles (Sect. 9.1.3).

[35] Thomas Hobbes of Malmesbury, *Leviathan, or the Matter, Forme, & Power of a Common-Wealth Ecclesticall and Civill,* London 1651, 18 et seq., 40, here 22.

[36] Joachim Wolf, *Organisation, Management, Unternehmensführung. Theorien und Kritik.* Wiesbaden 2003, 7 et seq.

[37] Geoff Mulgan, *The Case for Exploratory Social Sciences,* The New Institute, Hamburg 2021, 5.

[38] Ibid., 17.

[39] Ibid., 12.

# Chapter 7
# Emerging Scientific Infrastructure for Business Administration


**Abstract** Scientific development of a discipline is greatly enhanced by building its own infrastructure. At the turn of the twentieth century, this happens to business administration by establishing business schools, starting specific journals, and founding of professional associations. These activities contribute to the systematic and controlled advancement of knowledge in the field. They are sketched in the present chapter.

In the preceding chapters, it is made plausible that business administration was able to answer specific questions (Sect. 5.2.5), adopted or developed systematic approaches to generate new knowledge (Sect. 5.3.4), and became aware of the problem of losing knowledge (Sect. 5.4.3). Even important publications (such as the *Allgemeine Gewerkslehre* by *Emminghaus,* see Sect. 4.3) did not have substantial resonance because the sounding board was lacking. To develop towards a science, it is necessary to have such a sounding board, i.e., an infrastructure of academic and professional associations, journals to enable skepticism, and documentations to fight the loss of knowledge. These were still lacking at the end of the nineteenth century. In the following, we report on steps to compensate for such deficits.

## 7.1 Starting Business Schools

1. Until the end of the nineteenth century, several commercial schools, colleges, or academies existed in many countries. However, by and large, their curricula were no more considered sufficient to educate young businessmen to manage their companies.
   One example of such a commercial school existed in Hamburg/Germany. At the instigation of his mother, who had destined him to be a "financial specialist," *Alexander von Humboldt* was sent to study at *Johann Georg Büsch's* commercial



K. Brockhoff, *Management Ideas*, Contributions to Management Science,
https://doi.org/10.1007/978-3-031-09962-5_7

academy in Hamburg.[1] The name of *von Humboldt* indicates that the school obviously enjoyed an excellent reputation, although "finance" in these days was not considered intellectually challenging.[2] *Büsch* had taken the academy over from its founder, the merchant *Friedrich Christian Wurmb,* in 1771 and led it until his death. This institution existed from 1767 to 1800.[3] It was relatively short-lived as many others, depending on the standing and charisma of its director. In this case, the director had a clear idea of the subject matter: "*To trade means: to cede a stock of products of nature or art* (this means a manufactured good in this case, K. B.) *. . . to others with advantage, or, depending on the circumstances, with loss . . .. The intention to make a profit or to hope for it must lie at the bottom of all actions.*"[4] The education was centered on the cameral sciences with an additional focus on geography. This included a study of money circulation, "comptoir transactions (office transactions)," and, of course, bookkeeping.[5] The substantial weight given to economics, however, was not the most conducive environment for the development of business administration. *Johann Michael Leuchs* maintained a similar institution in Nuremberg. He taught his "system,"referred to above (Sect. 3.3, (6)), which has a more substantial business focus. None of the large numbers of commercial academies of this kind in Central Europe, even by the standards of the time, hardly reached university-level education. Still, many businessmen considered the training these schools provided as sufficient.

The idea of expanding the breadth and depth of the commercial academies into commercial colleges is obvious. But this did not happen. Even in the state of Braunschweig, where this was attempted for the existing *Collegium Carolinum,* the attempt failed: " *. . . the need for commercial higher education was still too small and, after all, the teachers were . . . good commercial school teachers, but not leading spirits*."[6]

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[1] Alexander von Humboldt, *Aus meinem Leben. Autobiographische Bekenntnisse*. Kurt R. Biermann, ed., München (Munich) 1987, 53. Karl Bruhns, ed., *Life of Alexander von Humboldt . . .*, Vol. I, London 1873, Chapter II (College Life) by Julius Löwenberg, 45. On von Humboldt: Andrea Wulf, *The Invention of Nature. Alexander von Humboldts New World*, New York 2016.

[2] Karl Bruhns, ed., *Life of Alexander von Humboldt . . .*, Vol. I, London 1873, Chapter II by Julius Löwenberg., 45.

[3] Johannes Classen, *Die ehemalige Handelsakademie des Professors J. G. Büsch und die Zukunft des akademischen Gymnasiums in Hamburg,* Hamburg 1865, 6.

[4] Johann Georg Büsch, *Theoretisch-Praktische Darstellung der Handlung in deren mannichfaltigen Geschäften,* Hamburg 1792, § 1. The text, intended for lectures, is based on Ludovici and refrains from considering new publications (p. 23). From 1813 to 1815, the author's complete works appear in four volumes in Vienna.

[5] Karl Bruhns, ed., *Life of Alexander von Humboldt . . .*, Vol. I, London 1873 (=*Alexander von Humboldt,* Vol. 1, Leipzig 1872, 108).

[6] Eduard Weber, Höhere kaufmännische Unterrichtsanstalten in Braunschweig von 1745 bis 1862, *Zeitschrift für das gesamte kaufmännische Unterrichtswesen,* 1912, Vol. 15, 137–142, 153–160, esp. 157, 159.

Similar developments can be observed in the USA. Institutes to educate accountants existed in the early nineteenth century, and they could use textbooks by their teachers. A more advanced knowledge was later offered by mercantile schools (for instance, in Cleveland/OH) and business colleges.[7]

Commercial schools in Russia that started in 1772 with a private initiative of *Prokofiy Demidow* were abandoned shortly after the Russian Revolution of 1917.[8] In Japan, colleges of commerce were established in Tokyo (1884), Osaka (1901), Kobe (1902),[9] Yamagouchi 1905 and Otaru (1910).[10]

Another obstacle to the institutionalization of business administration in Germany was the fact that in 1825 *Karl Heinrich Rau* (1792–1870) described "bourgeois economics" as a particular field of economics that should not be taught at universities.[11] This type of "private economics" is considered "abstract,"and (public) economics takes a "higher standpoint" compared to it. In this view, *Dieter Schneider* observes a strained relationship between the two sub-disciplines of economics that continues to this day.[12]

In the second half of the nineteenth century, the emerging large industrial companies, the large banks, and the department stores laid fully open the need for far better business education to improve their management. For this reason, various initiatives emerged that lobbied toward academic studies of business administration almost 180 years after *Marperger's* demands in the same direction (Sect. 3.4). Although there exist successfully operating institutions abroad that

[7] Gary John Previts/Barbara Dubis Merino, *A History of Accounting in America. An Historical Interpretation of the Cultural Significance of Accounting,* New York et al. 1979, 26 et seq., 47, 105 et seq.

[8] Vadim I. Marshev, *History of Management Thought. Genesis and Development from Ancient Origins to the Present Times,* Cham 2021, 279–283, 287–293.

[9] Yasutaro Hirai, Die Entwicklung der Handelsuniversitäten in Japan, *Zeitschrift für Handelswissenschaft und Handelspraxis,* 1923/1924, Vol. 16, 50–52.

[10] Lars Engwall, The anatomy of management education, *Scandinavian Journal of Management,* 2007, Vol. 23, 4–35, here 11.

[11] Karl Heinrich Rau, *Über die Kameralwissenschaft, Entwicklung ihres Wesens und ihrer Theile,* Heidelberg 1825. Rau originated the division of economics into economic theory, economic policy, and finance, which is still in use today. Joseph A. Schumpeter's judgment of Rau and his textbooks is sharp: a good teacher with "common sense, learning, and mediocrity"; the textbook appears as a summary of something from Adam Smith and an occasionally misunderstood David Ricardo, many facts, the elimination of superfluous administrative knowledge of the 18th century – "just what the future lawyer or civil servant was able and willing to absorb": *History of Economic Analysis,* New York 1954, 503 (footnote). Without the request of banishing business administration from universities: Karl Bernhard Arwed Emminghaus, *Allgemeine Gewerkslehre,* Berlin 1868; Moritz Weyermann/Hans Schönitz, *Grundlegung und Systematik einer wissenschaftlichen Privatwirtschaftslehre und ihre Pflege an Universitäten und Fach-Hochschulen,* Karlsruhe 1912, 48 et seq; Johann Friedrich Schär, Das Verhältnis von Nationalökonomie zur Privatwirtschaftslehre in kaufmännischen Betrieben (allgemeine Handelsbetriebslehre), *Bankarchiv,* 1912/1913, Vol. 12, 297 et seq.

[12] Dieter Schneider, *Allgemeine Betriebswirtschaftslehre,* 3rd ed., 2nd reprint, München /Munich)/ Wien (Vienna) 1994, 113.

serve commercial education at somewhat higher level, the immediate path to the universities was still blocked in Central Europe, whereby *Rau's* remarks were not the only obstacle.[13]

2. Proposals for establishing a university education in business management are increasingly put forward in the last third of the nineteenth century. In Germany, this is advocated by: (a) persons from the educational system, (b) lobbying associations geared explicitly to this goal, (c) practitioners and their associations.

   (a) The first group, based on the well-known proposals advanced by *Marperger* and *Ludovici*, is supported by *Arnold Lindwurm.* His proposal is said to have been part of a failed habilitation thesis.[14] *Lindwurm* himself also published on "Ausbildung im Handelsstande (Education in Commerce)" in 1861.[15] After all, the proposal triggered an expert opinion commissioned by the Leipzig Chamber of Commerce but remained just as unsuccessful as the attempt to start an academy at college level in Bonn.

   With reference to corresponding experiences with university chairs for agriculture and the training requirements for the managers of large enterprises, *Arwed Emminghaus* calls for the establishment of business management chairs at universities or later technical universities.[16] Because of the lack of such institutionalization, but possibly also because of the political objective openly revealed in some publications to contribute to workers' education and advancement,[17] publications on business administration had little impact in the nineteenth century and even less so on business education. As mentioned above (Sect. 4.3), even the theoretically less demanding books presenting the relationship between entrepreneurs and workers in a somewhat distanced manner did not receive much attention.[18]

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[13] Dieter Schneider. *Betriebswirtschaftslehre. Vol. 4, Geschichte und Methoden der Wirtschaftswissenschaft*, München (Munich)/Wien (Vienna) 2001, 190 et seq. Lars Engwall/V. Zamagni, eds, *Management Education in an Historical Perspective,* Manchester 1998; Lars Engwall/Rickard Danell, Britannia and her Business Schools, *British Journal of Management,* 2011, Vol. 22, 432–442.

[14] Wolfram Fiedler, Zur Geschichte der Handelshochschule Leipzig. In: Handelshochschule Leipzig, ed., *Festschrift anläßlich des 100-jährigen Gründungsjubiläums der Handelshochschule Leipzig am 25. April 1998,* Leipzig 1998, 51–84.

[15] Arnold Lindwurm, *Die Ausbildung zum Handelsstande,* Bremen 1861 (the author, who was ultimately not very successful, called himself Charles Arnold Lindome after moving to the USA).

[16] (Karl Bernhard) A(rwed) Emminghaus, *Allgemeine Gewerkslehre*, Berlin 1868, 40; Arwed Emminghaus, Ueber kaufmännische Fachbildung, *Kaufmännische Correspondenz. Wochenblatt für Volkswirthschaft, Statistik und Handelsrecht,* 1869, Vol. 2, 177–178, 186–190. Both reprinted in: Fritz Klein-Blenkers/Karl Robl, eds, *Schriften zur Geschichte der Betriebswirtschaftslehre,* Vol. 19, Köln (Cologne) 2009.

[17] Claude Louis Bergery, *Economie Industrielle,* 3 vols, Metz 1829–1831, especially vol. 1: L'Economie d'Ouvrier. In Germany, this is referred to in Leopold Carl Bleibtreu, *Lehrbuch der Handelswissenschaften*, Carlsruhe 1830.

[18] Max Haushofer, *Der Industriebetrieb. Ein Handbuch für Industrielle, Kaufleute (etc.) sowie zum Gebrauch an technischen Schulen,* Stuttgart 1874.

(b) The second group of advocates for university-level business management education in Germany includes, first and foremost, the "*Deutscher Verband für das kaufmännische Unterrichtswesen*" (*German Association for Commercial Education)*." It considered itself a lobby at all levels of business education, explicitly including a commitment to business schools at universities or as separate academic institutions.[19] Empirical material was collected and commented on with extraordinary commitment. The association ensured assertiveness through membership from public administrations, commercial practice, education, as well as making contacts in parliaments. Survey results showed that 83% of business leaders interviewed by the Association welcomed business schools unconditionally, and another 3.5% welcomed them under certain conditions.[20] Both the founding of a first 2-year program at the (now) RWTH Aachen (Aachen Technical University) (which was, however, discontinued after 10 years due to lack of demand) and the founding of the Handelshochschule Leipzig (Leipzig Graduate School of Management) were attributed to the Association's initiatives, while a corresponding attempt at the Technical University Dresden failed. Curricular proposals were also made, and, in particular, the training of commercial lecturers and professors was demanded and supported.[21]

(c) Practitioners as promoters of the idea of a commercial college, albeit well networked in their professional environment, acted both individually and through organizations such as the Chambers of Commerce. In the first case, for example, the initiative of the entrepreneur *Gustav (von) Mevissen* (1815–1899) in Cologne should be mentioned,[22] even if the regional parliament (Landtag) as his addressee rejected it, despite his promise for financial support.[23] Another early initiative by the Chamber of Commerce was undertaken in Breslau (now Wroclaw/Poland). It submitted a petition to the responsible Ministry in February 1870 intending to establish chairs of commercial science at Prussian Universities. The arguments calling for university-level business administration were: Technical progress, expanded

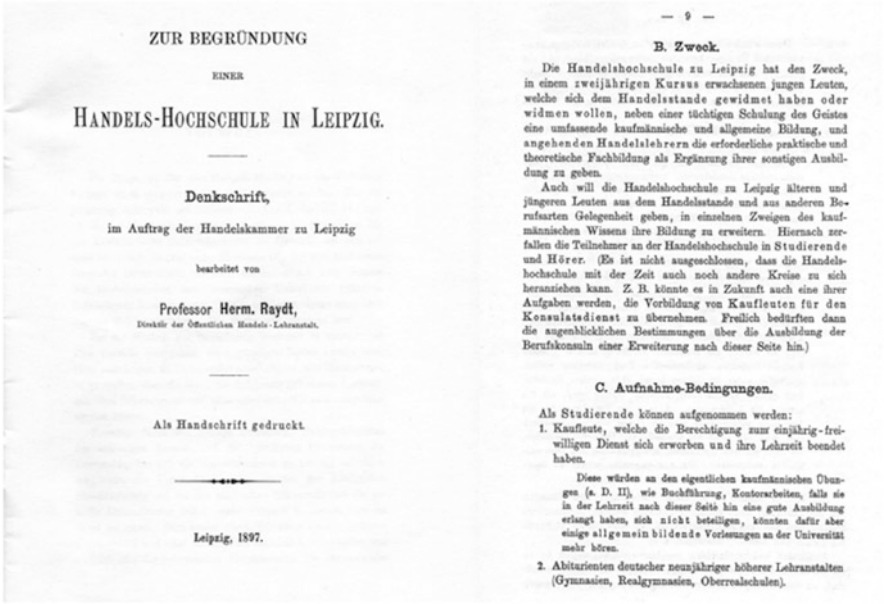
[19] W. Wolff, *Der Deutsche Verband für das kaufmännische Unterrichtswesen und seine bisherige Wirksamkeit*, Denkschrift, Braunschweig 1899 (=digitalisate.zbw.eu/data/Lieferung.009/8327/48099/832748099.pdf, accessed February 25, 2021). In great detail also: Konrad Zipperlen, *Der Deutsche Verband für das kaufmännische Unterrichtswesen (1895–1937)*, Diss. Univ. Erlangen-Nürnberg (Nuremberg) 1987.

[20] Wolfram Fiedler, Zur Geschichte der Handelshochschule Leipzig. In Handelshochschule Leipzig, ed., *Festschrift anläßlich des 100-jährigen Gründungsjubiläums der Handelshochschule Leipzig am 25. April 1998,* Leipzig 1998, 52–84, here 55.

[21] W. Wolff, *Der Deutsche Verband für das kaufmännische Unterrichtswesen und seine bisherige Wirksamkeit*, Denkschrift, Braunschweig 1899 (=digitalisate.zbw.eu/data/delivery.009/8327/48099/832748099.pdf, accessed February 25, 2021), 27 et seq.

[22] Joseph Hansen, *Gustav von Mevissen. Ein rheinisches Lebensbild, 1805–1899,* Berlin 1906.

[23] Wolfram Fiedler, Zur Geschichte der Handelshochschule Leipzig. In Handelshochschule Leipzig, ed., *Festschrift anläßlich des 100-jährigen Gründungsjubiläums der Handelshochschule Leipzig am 25. April 1998,* Leipzig 1998, 52–84.



ZUR BEGRÜNDUNG

EINER

HANDELS-HOCHSCHULE IN LEIPZIG.

Denkschrift,

im Auftrag der Handelskammer zu Leipzig

bearbeitet von

Professor Herm. Raydt,

Direktor der Öffentlichen Handels-Lehranstalt.

Als Handschrift gedruckt.

Leipzig, 1897.

— 9 —

B. Zweck.

Die Handelshochschule zu Leipzig hat den Zweck, in einem zweijährigen Kursus erwachsenen jungen Leuten, welche sich dem Handelsstande gewidmet haben oder widmen wollen, neben einer tüchtigen Schulung des Geistes eine umfassende kaufmännische und allgemeine Bildung, und angehenden Handelslehrern die erforderliche praktische und theoretische Fachbildung als Ergänzung ihrer sonstigen Ausbildung zu geben.

Auch will die Handelshochschule zu Leipzig älteren und jüngeren Leuten aus dem Handelsstande und aus anderen Berufsarten Gelegenheit geben, in einzelnen Zweigen des kaufmännischen Wissens ihre Bildung zu erweitern. Hiernach zerfallen die Teilnehmer an der Handelshochschule in Studierende und Hörer. (Es ist nicht ausgeschlossen, dass die Handelshochschule mit der Zeit auch noch andere Kreise zu sich heranziehen kann. Z. B. könnte es in Zukunft auch eine ihrer Aufgaben werden, die Vorbildung von Kaufleuten für den Konsulatsdienst zu übernehmen. Freilich bedürften dann die augenblicklichen Bestimmungen über die Ausbildung der Berufskonsuln einer Erweiterung nach dieser Seite hin.)

C. Aufnahme-Bedingungen.

Als Studierende können aufgenommen werden:

1. Kaufleute, welche die Berechtigung zum einjährig-freiwilligen Dienst sich erworben und ihre Lehrzeit beendet haben.

   Diese würden an den eigentlichen kaufmännischen Übungen (s. D. II), wie Buchführung, Kontorarbeiten, falls sie in der Lehrzeit nach dieser Seite hin eine gute Ausbildung erlangt haben, sich nicht beteiligen, könnten dafür aber einige allgemein bildende Vorlesungen an der Universität mehr hören.

2. Abiturienten deutscher neunjähriger höherer Lehranstalten (Gymnasien, Realgymnasien, Oberrealschulen).

**Fig. 7.1** Raydt's decisive document to start the Leipzig business school and its purpose ("Zweck")

and more complex entrepreneurial activities, the involvement of practitioners in public decisions on economic issues, and the availability of basic literature. It was demanded that the professors to be appointed should have practical experience. The Ministry replied in a friendly but firm manner that the time was not yet ripe for this proposal.[24] Maybe the Ministry feared the financial burden would be overly heavy if more Prussian Universities joined in the demand. In 1898, the Leipzig Chamber of Commerce was successful, based on an expert opinion by *Hermann Raydt* (1851–1914).[25] According to this, a business school affiliated with (but being no part of) the University of Leipzig should be established.

In 1897 *Hermann Raydt* had presented his memorandum "*Zur Begründung einer Handels-Hochschule in Leipzig (On establishing a business school in Leipzig)"* on behalf of the Leipzig Chamber of Commerce (Fig. 7.1). A conference of the "*German Association for Commercial Education*" at the location had underlined the need. The author teaches at a newly established commercial school. The extent of the reservations or even resistance against the proposal can be inferred indirectly from the text in various

[24] (No author given), Petition der Breslauer Handelskammer um Errichtung von Lehrstühlen für Handelswissenschaft, *Breslau's resp. Schlesiens Handel und Industrie 1870, Jahresbericht der Handelskammer in Breslau,* 10–14.

[25] Hermann Raydt, *Zur Begründung einer Handels-Hochschule in Leipzig,* Leipzig 1897 (reprint 1991).

places. To keep resistance at bay, the intention was to start small on "*favorable ground, build on what already existed*," and proceed flexibly. Talks had been held with the university, the chamber of commerce promised to cover a limited deficit, and the relevant ministries had to be won over for approval.[26] The argumentation is clever: One wants to stay small and not stand out. One does not have to move into the university, thus avoiding head-on competition. The education is supposed to offer something additional to existing offers because the well-educated and valued "German businessman" is facing new challenges. These challenges, translated into today's language, read like the introduction to a course in strategic management:[27]

> . . . there is a sentiment among our businessmen that their present education is not keeping pace with the growing demands of traffic, the progress of industrial technology, the ever-increasing importance of socio-political conditions, and the ever more difficult struggle for existence. To an even greater extent, it is felt as pain in the German business community that the influence of the businessmen in the management of the life of our state, both in the Empire and in the individual German states, is too small. One hopes to be able to remedy both evils for the future by an even more solid training and education of our young businessmen.

Business schools should be established for a relatively small number of businessmen, lawyers, teachers (for further training as lecturers in business), and retired officers. A "direct affiliation" with the University of Leipzig had been ruled out in earlier consultations. An independent organization was to be established, whose future students were, however, to be "*admitted to the academic lectures of the university as guests*." A 2-year course was deemed necessary, which was to address regular students and guests. Admission was intended for high school graduates as well as for businessmen with completed apprenticeships (who demonstrate a level of education entitling them to 1 year's voluntary military service, which meant 10 years of schooling). Foreigners with comparable educational levels could also be admitted. After completion of the course program, students were "entitled" to take a final examination.[28]

The curriculum included courses in economics, business administration, law, mathematics, foreign languages, and introductions to various techniques (shorthand, typewriting). The business administration part was limited to knowledge of merchandise, commercial geography, commercial arithmetic, and bookkeeping. It comprised about a quarter of all courses. The concept aims at teaching a relatively narrow and little developed knowledge of business administration at

[26] Ibid., here from the "preface" to the memorandum.

[27] Ibid., 1.

[28] Ibid., 9–13.

the bachelor level.[29] There is no mention of research as an occupation of the school. The program follows a "*cameralistic understanding of science*."[30] The whole plan falls far short of *Emminghaus*' much more ambitious proposal of 1869[31] as well as the far more advanced knowledge in microeconomics (Sect. 4.3) available at the time. "*The business schools were only a frame; the content had yet to be brought in*".[32]

On January 14, 1898, the Royal Ministry of the Interior issued a decree approving the founding of the school, granting funding of 5000 marks per year, and at the same time stating that the college should not be affiliated with the university because of "*certain unfavorable characteristics. These include the well-known forms of student sociability,*" even if they are only cultivated by a minority, loafing despite excessively long semester breaks, and breaches of contracts with merchants and artisans.[33] This clears the way for the start of teaching.[34]

3. Shortly after that, similar schools were founded in the German-speaking area in Aachen, St. Gallen/Switzerland, and in Vienna/Austria,[35] where the focus was on the export business. From 1901 onwards, more institutions were established in Germany, for example, in, Cologne (1901), Frankfurt (1901), and Berlin (1906).[36] These schools soon acquired international reputation. Among other indications, this can be read from the fact that the Swedish King Gustav V. visited the Berlin School in 1908 when preparing to establish similar institutions in his home country. After the establishment of these schools, Sweden tried to lure prominent German professors to its schools.[37] While *Schmalenbach*

[29] Be reminded that the first graduate program was started in the USA by the Amos Tuck School of Administration and Finance in 1900.

[30] Dieter Schneider, *Allgemeine Betriebswirtschaftslehre,* 3rd ed., 2nd reprint, München (Munich)/Wien (Vienna) 1994, 130.

[31] A(rwed) E(mminghaus), Ueber kaufmännische Fachbildung, *Kaufmännische Correspondenz,* 1869, Vol. 2, 177–178, 186–190, here 189.

[32] Alfred Isaac, *Die Entwicklung der wissenschaftlichen Betriebswirtschaftslehre in Deutschland,* Berlin 1923, 43.

[33] Hermann Raydt, *Zur Begründung einer Handels-Hochschule in Leipzig,* Leipzig 1897 (reprint 1991).

[34] An account that does not omit the controversies in practice and science surrounding the founding of business schools in general is given in: Dieter Schneider, Die ersten Handelshochschulen, in: Eduard Gaugler/Richard Köhler, eds, *Entwicklungen der Betriebswirtschaftslehre. 100 Jahre Fachdisziplin - zugleich eine Verlagsgeschichte,* Stuttgart 2002, 39–59.

[35] Karl Oberparleiter, Geschichte der Exportakademie und der Hochschule für Welthandel, in: *50 Jahre Hochschule für Welthandel in Wien,* Wien (Vienna) 1948, 5–12. On commercial colleges in a large number of countries see: *Handwörterbuch der Betriebswirtschaft,* Stuttgart 1926/1927. Volumes 2 (Col. 1557–1599) and 3 (Col. 1–55).

[36] Günter Herbert Zander, *Gründung der Handelshochschulen im deutschen Kaiserreich (1898–1918),* Diss. Univ. Cologne 2004 (digitized: University and City Library Cologne, accessed February 15, 2021).

[37] Rundschau, *Zeitschrift für Handelswissenschaft und Handelspraxis,* 1908/1909, Vol. 1, 145.

declined the offers, *Ernst Walb* moved to Stockholm, however, for 2 years only.[38] *Schmalenbach* served as advisor to the Stockholm School of Economics, he was the teacher of three professors who introduced the discipline to Sweden (*Walb* from 1909 to 1910, *Oskar Sillén* from 1911 to 1951, and *Walter Mahlberg* from 1923 to 1926), and he—among others—authored monographs and textbooks that were used for quite some time.[39] German "Handelshochschulen" offered a model to Sweden, where even the Swedish translation of the word was adopted. Schools were started in Stockholm (1909), and in other Scandinavian countries somewhat later (Helsinki 1911, Copenhagen 1917, Bergen 1936).[40]

Most of the private German business schools had to give up at the latest after the end of the First World War or were incorporated into state institutions: "*Defeat* (of World War I, K. B.) *and inflation ended wealth and weakened the willingness, and capacity, of firms to maintain the business schools financially.*"[41]

4. In Philadelphia/PA, a *School of Finance and Commerce at the University of Pennsylvania was* founded in 1881 on the initiative of the steel manufacturer *Joseph Wharton*. It was conceived as an undergraduate school. The curriculum was soon developed to cover accounting, finance, industrial management, insurance, marketing, transportation, and business law.[42] As in Germany,[43] business education at universities faced substantial reservations and opposition. The

[38] Eva Wallerstedt, Schmalenbach's Influence on Swedish Business Economics, *Zeitschrift für Betriebswirtschaft,* 2000, Vol. 70, 415–431.

[39] Ibid., 417.

[40] Brief descriptions, which mention German influences on other areaas are given in: Hanns Martin Schoenfeld, Betriebswirtschaftslehre im anglo-amerikanischen Raum, Cols. 747–759; Erich Loitelsberger, Betriebswirtschaftslehre im deutschsprachigen Ausland, Cols. 759–767; Louis Perridon, Betriebswirtschaftslehre im niederländischen Raum, Cols. 767–772; Sven-Åke Nilsson, Betriebswirtschaftslehre im nordeuropäischen Raum, Cols. 772–779; Andreas Schranz, Betriebswirtschaftslehre im osteuropäischen Raum, Cols. 779–787; Louis Perridon, Betriebswirtschaftslehre im romanischen Raum: Frankreich, Cols. 787–792; Egidio Gianessi, Betriebswirtschaftslehre im romanischen Raum: Italien, Cols. 792–802; Toshiyoshi Shimizu, Business Administration in Japan, Cols. 802–808; all in: *Handwörterbuch der Betriebswirtschaft*, 4th ed., Stuttgart 1977. Horst Albach, Ernst Walb - den förste professoren i handelsteknik, 49–66; Horst Albach, Walter Mahlberg - den förste företags-ekonomi-professoren i Göteborg, 87–107. In: Lars Engwall, ed., Företgångare inom företagsekonomin, Stockholm 1995.

[41] Horst Albach, Business Administration: History in German-Speaking Countries, in: *Handbook of German Business Management,* Vol. 1, Stuttgart et al. 1990, Col. 246–270. The school in Leipzig became an institution under public law as early as 1911.

[42] www.wharton.upenn.edu/history, accessed October 31, 2021.

[43] Max Weber's emotional and spiteful rejection need not be repeated here. See Dieter Schneider. *Betriebswirtschaftslehre. Bd.4, Geschichte und Methoden der Wirtschaftswissenschaft*, München (Munich)/Wien (Vienna) 2001, 193, and footnote 346. Further opposition came from economists, particularly those of the "historical approach" mentioned above. Some representatives of engineering tried to subsume business administration under their discipline. This, however, was strongly rejected by: Willi Prion, *Ingenieur und Wirtschaft: Der Wirtschaftsingenieur,* Berlin 1930, 17 et seq.

sociologist *Thorstein Veblen* (1857–1929) opposed the subject because it easily promotes ways and means to generate personal profits (and academically he puts it on a par with sports departments in universities), which should not be the objective of university education.[44] Despite this, a commerce faculty was founded in 1898 at the University of Chicago, and the University of California at Berkeley established a business school in the same year. As already mentioned, the first graduate-level business education was started in 1900 at Dartmouth College, named after the father of the main sponsor, the *Amos Tuck School of Administration and Finance*.[45] *Harvard Business School* was established in 1908.[46] It was started from the Humanities section. *Edwin Francis Gomer Gray*, its first dean, had received his doctoral degree under the guidance of economics professor *Gustav Schmoller* in Berlin in 1902.

5. In France, the "*Ecole des Hautes Etudes Commerciales*" was founded in Paris 1881, followed by "*Ecoles de Commerce*" in Lille 1892, Rouen 1895, Nancy 1896, Montpellier 1897, Dijon 1900, and Toulouse 1905. The initiative came from local chambers of commerce. The educational level was not considered very advanced.[47]

> Although the London School of Economics and Political Science was founded in 1895 and was followed by commerce degrees at the universities of Birmingham (1902) and Manchester (1904), it was not until the mid-1960's that academic management education as observed elsewhere was created in the UK through the foundation of London Business School and Manchester Business School.[48]

Europe was later to establish university chairs for business administration than the USA. The University of Zurich established the first European university chair for business administration in 1903. The University of Freiburg followed in 1920. The justifications used were very similar to those presented in Leipzig. After initial reservations, the initiative of practice, the "*Kaufmännische Gesellschaft Zürich (Merchant's Society of Zurich)*," aimed at a university chair. The supervisory authority complied for reasons of scientific policy, particularly in order not to fall behind in the cantonal competition with Basel or St. Gallen and for economic reasons. *Johann Friedrich Schär* (1846–1924) was appointed for "commercial sciences, especially commercial management, commercial

[44] Thorstein Veblen, *The Higher Learning in America: A Memorandum on the Conduct of Universities by Business Men,* New York 1918, esp. also 210.

[45] www.tuck.edu, accessed October 31, 2021; the name changed in 1941 to Amos Tuck School of Business Administration.

[46] Melvin Thomas Copeland, *And Mark an Era,* Boston et al. 1958.

[47] Lars Engwall/V. Zamagni, edts., *Management Education in an Historical Perspective,* Manchester 1998, 5.

[48] Lars Engwall/Rickard Danell, Britannia and her Business Schools, *British Journal of Management,* 2011, Vol. 22, 432–442, here 433.

arithmetic, and accounting."[49] The innkeeper and export trader passed the teacher's examination at the teacher's training college in Berne/Switzerland, became headmaster in Biel, and from 1892 to 1903 instructor at the commercial school in Basel. From there, he was appointed to the University of Zurich, from where he moved on to become a professor of the new business school in Berlin in 1906. Incidentally, it is impressive to read his proposal to the founders of this school that outlines a "seminar" to conduct teaching, collect literature and material to document practices of business, offer advice to business, etc. *Schär* outlines the necessary resources in terms of a responsible professor, an assistant, rooms, and monetary support of the institution, and the obligation of other lecturers to use the "seminar."[50] These seem to list the conditions under which he might accept a move to Berlin.

This particular case illustrates a problem of the young business schools. To fill professorial positions, they cannot yet draw on professionally trained academics. Another case is that of *Eugen Schmalenbach*. When he was habilitated for the field of business management in 1903, he was the first person to be awarded this degree. In 1906 he was appointed professor at the business school of Cologne. However, very surprisingly, he received his doctorate only later, although this degree was considered a prerequisite for the habilitation. The administration of the Wharton School appointed instructors from the liberal arts to teach at the business school. However, 2 years after its start, they hired personnel "*who were 'versed' in business subjects*".[51]

Leaving the universal staffing problem aside, the different speed of developing business schools in various nations calls for an explanation. A complex, although not rigorously tested answer is offered by *Lars Engwall: "Countries that already have firmly established systems for selecting their elites, can be expected to be slower to adopt management education. Similarly we could also expect countries were small firms and family-controlled firms dominate to be slower, since they will have fewer management problems in large organizations and will be more inclined to recruit leaders on a basis of kinship rather than education."*[52] While the case of Germany fits with the first explanation, it is difficult to see how it harmonizes with the second sentence, given its high share of family business, often also large enterprises.

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[49] Bettina Bieler/Lukas Widmer, *Der erste Lehrstuhl für Betriebswirtschaftslehre an einer Universität im deutschen Sprachraum,* licentiate exam paper, Universität Zürich, 2003 (accessed August 11, 2011).

[50] J(ohann) Fr(iedrich) Schär, *Denkschrift an die Aeltesten der Kaufmannschaft von Berlin über das Handelswissenschaftliche Seminar der Berliner Handelshochschule,* Landesarchiv Berlin, A Rep-200-01, 630.

[51] Daniel A. Wren/David D. van Fleet, History in Business Schools, PDF in Research Gate, 1983, 29–35 (accessed November 1, 2021). A similar text under the title "History in today's business schools" appeared in the *Accounting Historians Journal,* December 1982, 1–7.

[52] Lars Engwall, The anatomy of management education, *Scandinavian Journal of Management,* 2007, Vol. 23, 4–35, here 10.

6. The business schools could not yet offer doctoral degrees, and in the universities, there were few who considered supporting doctoral students interested in business topics. This tension was relieved after business schools acquired the right to offer doctoral degrees. The University of Berne/Switzerland was probably the first to offer a doctoral degree in commercial sciences in 1912. *Harvard Business School* established its doctoral program in 1922. German business schools offered comparable degrees from 1922 onwards (Mannheim 1922, Berlin 1927, Leipzig 1930).[53]

   The number of professorships was small and remained small during the first decennia of the discipline's development. In Germany (and considering that this means the Reich that extends in the East to what is today known as Kaliningrad), six professorships were counted in 1920 and 29 in 1931.[54] An indication of the composition of the teaching personnel is given for 1908: Of 276 headcounts of teaching personnel, 14% were fully employed "professors," and a further 3% habilitated scholars without full employment. The background and qualifications of the majority of 83% are not revealed.[55]

   Offering doctoral degrees by business schools was controversial. On the one hand, practitioners were critical because they feared that the schools could thus assume a more theoretical and less practice-oriented teaching and research culture. On the other hand, schools that were not part of universities considered their inability to offer doctorates as a competitive disadvantage compared with business departments in universities. In Germany, the same was important for offering the opportunity to achieve the habilitation as the entry exam for professorships in the established departments of universities.

   The route to doctorates was paved by adopting more and more research interests by the business schools. This became manifest by starting specific research centers. *Heinrich Nicklisch*, when appointed to deanship of the *Mannheim Business School* in 1914, established the "*Betriebswirtschaftliches Institut für Forschungen auf dem Gebiet des Betriebslebens (Business administration institute for research in the field of business)*".[56] The *Wharton School* reports on the first business school research center in 1921.[57]
7. Alongside the professionalization of careers in business studies is the development of the object of the discipline. With respect to the Wharton School, this was already mentioned above. The speed of change can be gauged by comparing

[53] Curt Eisfeld, Handelshochschulen und Promotionsrecht, *Zeitschrift für Handelswissenschaft und Handelspraxis,* 1923/1924, Vol. 16, 250–252; diverging dates given in: Konrad Zipperlen, Der deutsche Verband für kaufmännisches Unterrichtswesen (1885–1937), Diss., Univ. Erlangen/Nürnberg (Nuremberg) 1987, 302.

[54] Bernhard Bellinger, *Geschichte der Betriebswirtschaftslehre,* Stuttgart 1957, 98.

[55] Georg Obst, Die deutschen Handelshochschulen, *Zeitschrift für Handelswissenschaft und Handelspraxis,* 1908/1909, Vol. 1, 192–196.

[56] Rudolf Seyffert, Betriebswirtschaftliche Institute als Forschungs– und Unterrichtsstätten, *Zeitschrift für Handelswissenschaft und Handelspraxis,* 1923/1924, Vol. 16, 252–259.

[57] www.wharton.upenn.edu, accessed November 1, 2021.

*Raydt*'s draft curriculum with the one by *Schär*, published only 13 years later.[58] It reflects an expanded concept of business schools, not only with respect to the programs but also including research. The educational goal should not only to acquire professional skills but, beyond this, a particular professional aptitude (and this is still the case today in a large number of mission statements and examination regulations). The main concern was that practice must be given a theoretical basis. The following excerpt demonstrates the change:

> As before, the route to high and highest positions in business will have to pass through practice; … Admitting this, another thought is also undoubtedly correct … namely that practical business teaching alone is quite insufficient … In general, in this age of inventions and progress, it is no longer useful to construct an irreconcilable opposition between theory and practice … Practice (is) nothing other than applied theory, and theory only abstract practice. Yes, even more, practice owes its main progress to theory …. It is science that passes on the best methods of operation to the younger generations, tests them, systematizes them, develops and improves them. The same must happen to the commercial enterprises. If they remain protectors of trade secrets held by their principals and according to customs of their forefathers … they will be lost with the death of their owners.[59]

The new programs clearly separated business management from the management of whole economies.[60] Still, accepting the profit motive as the driver of business economics is ambiguous: *Schär* rejects a one-sided orientation of research to increase returns on capital, but he finds profit-seeking as reward for performance is acceptable. This touches again on the ethical questions that marred many scholars (Sects 4.1 and 8.1 (2)). The structure of his advanced program is summarized in Fig. 7.2.

Commercial sciences, in a broader sense, are broken down into three fields. In a narrower sense, the subject includes what today may be called general management, but also foreign trade, organization, and finance. During these days, specializations concern industry studies rather than functional areas of management. Industry studies are covered under the term "practical general management." Accounting is broken down into bookkeeping and commercial arithmetic. "Boundary areas" include at first finance in a broad sense and insurance; this is astonishing as it could have been covered by Theoretical General Management or as a specific industry study. Journalism indicates that management should be aware of public opinion and of reading the daily news. A specific part of the curriculum should be devoted to discussing new developments in the discipline or nearby fields.

Commercial sciences "in a broader sense" signals an additional meaning. The terms "Handel" and "Handlung" gradually changed their meaning from commerce

[58] Johann Friedrich Schär, *Allgemeine Handelsbetriebslehre,* I. Band, Leipzig 1911. This is not the only draft for further advanced curricula. Other examples are presented and commented on in the current journals. A comparative account is offered by Fritz Schmidt, Der Lehrbetrieb in der Privatwirtschaftslehre, *Zeitschrift für Handelswissenschaft und Handelspraxis,* 1917/1918, Vol. 10, 4–14.

[59] Johann Friedrich Schär, *Allgemeine Handelsbetriebslehre,* I. Band, Leipzig 1911, 14 et seq.

[60] Ibid., 18.

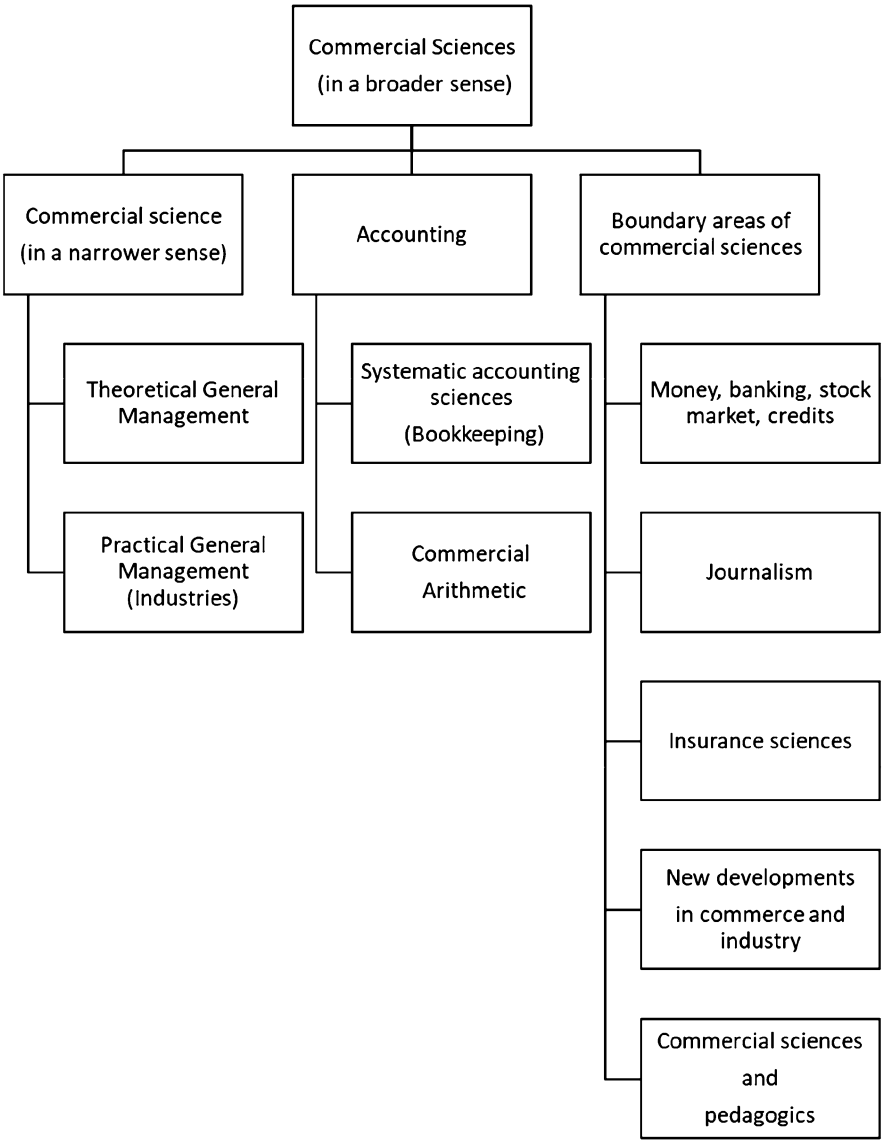


**Fig. 7.2** Model concept for teaching commercial sciences by Schär, 1914

and trade to business. Similarly, the verb "to trade" absorbed more and more the meaning of "to manage." With this in mind, commercial sciences, in a broader sense, really meant business administration as an academic field of study and research. The change of meaning is also reflected in changing titles of journals, as will become clear in the following chapter. One should also note that business schools and universities in Germany conferred upon their graduates the degree of

"Diplom-Kaufmann" (later also "Diplom-Kauffrau") until the introduction of bachelor and master structures to their programs in the early 2000s. Literally, the degree meant an academically educated merchant but was much more broadly understood in the sense of managers or businessmen.

*Schär*'s concept is far more concentrated on business administration than those adopted at the turn of the century, and it is much more specialized. Interestingly, industry studies have been started to take care of the unique problems arising in manufacturing, banking, trade, etc.

## 7.2 Publications for the Discipline

Research and the felt need to discuss curricula development triggered a demand to find publication opportunities, particularly in journals. In the following, we present a list of major business journals created to serve the profession, including the dialog between researchers and practitioners. The overview is restricted to the USA and Germany and the time from the turn of the century to the end of the 1930s.[61]

1905 Journal of Accountancy

1906 Schmalenbach's Zeitschrift für handelswissenschaftliche Forschung (Schmalenbach's Journal for Research in Commercial Sciences), last issue 1944; new series started in 1948; 1963 renamed Schmalenbach's Zeitschrift für betriebswirt-schaftliche Forschung; 2000 split into the German language journal and SBR, an English language journal under the name of Schmalenbach's Business Review; 2021: after the merger with the online journal "Business Research" all English under the title "Schmalenbach's Journal of Business Research"

1907 Zeitschrift für Handelswissenschaft und Handelspraxis (Journal for Commercial Sciences and Practice); 1930 renamed "Die Betriebswirtschaft" (Business Administration), last issue 1943; 1977 new series started; 2016 last issue.

1922 Harvard Business Review

1924 Zeitschrift für Betriebswirtschaft (Journal of Business Administration); last issue 1944; new series started 1950; 2013 renamed "Journal of Business Economics" with English articles only.

1926 The Accounting Review

1928 Journal of Business; last issue 2006

1936 Journal of Marketing

[61] A more encompassing text that also includes information on German publishers that entertain a core of business publications is given by: Michael Lingenfelder/Peter Loevenich, Medien und Fachverlage in der Betriebswirtschaftslehre. In: Michael Lingenfelder, ed., *100 Jahre Betriebswirtschaftslehre in Deutschland, 1898–1998*, 231–252.

As mentioned in the preceding chapter, we observe that the German journals change names to signal the broader meaning of "commerce" and its transfer to "business" in general. Further, it is interesting to note that journals in the USA (except for Harvard Business Review) chose to specialize, while the German publications during this period covered the whole breadth of business topics if judged by their title. However, as most research dealt with accounting, this is reflected in the number of publications. "Schmalenbach's Journal for Research in Commercial Sciences" between 1906 and 1932 carried 862 major papers, of which 24% dealt with industry-specific problems. Of the remainder, 49% covered accounting and related fields such as internal control, and close to 30% dealt with financial issues. Procurement and logistics were covered in close to 9% of the articles. Only 12% related to all other issues in business management, such as human resources, marketing, organization, etc.

These days, double-blind review of journal articles was not yet the standard. Instead, the editor and co-editors, actual or past staff members reviewed articles and decided on their publication. As rivaling schools of thought existed, this may in part explain the relatively large number of general management journals in Germany.

The enormously growing knowledge since the start of business schools called for systematically organized reference works. In fact, two of these had importance because of new editions well beyond the period covered in this section.[62] The chief editor of the famous "*Handbook of Business Administration (Handwörterbuch der Betriebswirtschaft)*" stated his goals clearly:

> The intent of the work can be stated in the following way:
>
> 1. An overall picture of business administration should be given;
> 2. Business scholars should be given an overview of the individual achievements in their field, and the organic progress of their work should be promoted;
> 3. The results of business management research should be transferred to practical life so that they become useful.
>
> To 1. it is to be said: The overall picture of business administration did not exist until the publication of the handbook. However, it was urgently needed if the work of business scholars was to develop organically. . . .
>
> To 2. Anyone who wanders through the business management literature today will find that results which have already been achieved are not always sufficiently utilized in subsequent works . . . . The idea of a free co-operation with others is only gradually being accepted . . . . The efficiency of business management research, however, suffers from this . . .
>
> To 3. It must be said that I am not one of those who speak of a 'purposeless' science. Science must be entirely uninfluenced; even the slightest influence would be anti-scientific.

[62] *Handwörterbuch der Betriebswirtschaft*, 4 Vols., 1st ed., Stuttgart 1926–1928; Georg Obst, *Das Buch des Kaufmanns*, 2 Vols., Stuttgart 1928. Georg Obst, *Lehrbuch des Geld-, Bank- und Börsenwesens. Ein Handbuch für Handels- und Fortbildungsschulen und zur Selbstbelehrung*. Stuttgart 1900. The work is still published today, of course edited by other scholars. It reached its 40th edition in 2007.

> But purposeless? Scientific work would then become a natural phenomenon, not influenced by the human will to work, and it would be found where men have merely ideas. Such ideas, however, do not form a method of systematic work … Or is 'purposeless' to mean: only knowledge that cannot be applied in real life is really scientific. Surely not.[63]

In 1990 a "*Handbook of German Business Management"* appeared to present the current knowledge to English-language readers.[64] With the spread of electronic media, the tradition of these handbooks came to an end.

In summary, we recognize that beyond the publications of books, the discipline created journals that could be used to publish, raise criticism, and control results; this contributes to the development of a science by supporting criteria mentioned in Sect. 5.3.3.

## 7.3 Professional Associations to Serve Scientific Advances

Professional associations are important for the development of a science for many reasons: supporting the dialogue in a profession, supporting research and teaching, supporting young professionals, transferring research results into possible applications, finding consensus on scientific standards, engaging in international cooperation, representing the discipline in society and politics.[65] In a young discipline, not all of these functions may be performed by an association. Providing a forum for dialogue and setting scientific standards may be the functions most wanted in the early years. Quite a number of professional associations were established in the discipline:[66]

1880 Institute of Chartered Accountants in England and Wales[67]

1887 American Association of Certified Public Accountants;[68] 1916 renamed: Institute of Public Accountants; 1917 renamed: American Institute of Accountants; 1957 renamed: American Institute of Certified Public Accountants; 2021 renamed: International Institute of Certified Public Accountants

[63] Heinrich Nicklisch, Vorwort, *Handwörterbuch der Betriebswirtschaft*, Vol. 1, Stuttgart 1926.

[64] Two Vols, Stuttgart/New York 1990.

[65] Wissenschaftsrat (German Science and Humanities Council), *Zur Förderung von Wissenschaft und Forschung durch wissenschaftliche Fachgesellschaften*, Köln (Cologne) 1993.

[66] The overview is not exhaustive. Many more associations were founded, partly as a consequence of specialization within the discipline. See also: Klaus Backhaus, Betriebswirtschaftliche Vereinigungen. Ihre Bedeutung für die Verbreitung ökonomischen Gedankenguts. In: In: Michael Lingenfelder, ed., *100 Jahre Betriebswirtschaftslehre in Deutschland, 1898–1998*, 213–229.

[67] R. W. Perks, *Accounting and Society,* London 1993.

[68] Thomas Roberts, The American Association of Public Accountants, *The American Historian,* Vol. 14, 2: 116–124.

1896 Verband Berliner Bücherrevisoren; 1919 renamed: Verband deutsche Bücher-revisoren; 1930 renamed: Institut für das Revisions- und Treuhandwesen; 1932 renamed: Institut der Wirtschaftsprüfer (Institute of Certified Public Accountants)

1903 Verein akademischer Kaufleute (Association of academic businessmen); 1905 renamed: Verband der Inhaber deutscher Handelshochschuldiplome (Association of the Graduates of German Commercial Schools); 1912 renamed: Verband deutscher Diplomkaufleute (Association of German Business Graduates); 1933 merged into a Nazi-Organization

1907 Handelshochschulkonferenz (Conference of German Business Schools) Kassel; more meetings 1911 Wiesbaden, 1921 Berlin, 1921 Frankfurt, 1922 Berlin, and more.

1912 Society to Promote the Science of Management (founded after informal meetings in 1910/1911; renamed Taylor Society in 1915; merged with Society of Industrial Engineers (started in 1917) in 1936 to become Society for the Advancement of Management

1913 The National Association of Corporate Schools; 1923 renamed: American Management Association[69]

1916 American Association of University Instructors in Accounting[70]

1921 Verband der Dozenten der Betriebswirtschaft an deutschen Hochschulen (Association of lecturers in business administration at German higher educational institutions); 1948 renamed and re-instituted: Verband der Hochschul-lehrer für Betriebswirtschaft (German Academic Association for Business Research)[71]

1922 Gesellschaft für Organisation

1932 Schmalenbach Vereinigung (Schmalenbach Association); 1952 renamed: Schmalenbach Gesellschaft; 1978 merged with: Deutsche Gesellschaft für Be-triebswirtschaft (established 1936)

1936 American Accounting Association

1936 Academy of Management; reactivated 1947

1937

[69] F. C. Henderschott, The National Association of Corporate Schools, *Transactions of the Institute of Electrical Engineers,* 1913, Vol. 32, 2/1413–1416.

[70] Reference to „universities" in the name of the association indicates that it was critical of the non-university business schools: Gary John Previts/Barbara Dubis Merino, *A History of Accounting in America. An Historical Interpretation of the Cultural Significance of Accounting,* New York et al. 1979, 216.

[71] Klaus Brockhoff, Zur Vor- und Frühgeschichte des Verbands der Hochschullehrer für Betriebswirtschaft, *Zeitschrift für betriebswirtschaftliche Forschung,* 2016, Vol. 68, 229–251; Klaus Brockhoff, Der Verband der Hochschullehrer für Betriebswirtschaft von 1948–1953, *Betriebswirtschaftliche Forschung und Praxis,* 2016, Vol. 68, 1–35.

American Marketing Association (merged from National Association of Marketing Teachers and American Marketing Society)
1952 Deutsche Gesellschaft für Personalführung

This selection already indicates that business administration has created institutions that establish it as a science by performing one or the other of the functions mentioned in the introduction to this chapter. This took quite some time. However, there was not much to build upon, and headwinds blowing were strong. Furthermore, it took until 1991 that the *International Federation of Scholarly Associations of Management* came into life.[72]

[72] www.ifsam.org (accessed January 10, 2022)

# Part III
# The Institutionalized Science

# Chapter 8
# In Search of an Objective Function and a Name


**Abstract** Business administration was not welcome immediately as an academic discipline. Its main objects, institutions that strive for profits, caused ethical concerns not only to representatives of other social sciences but also within the discipline. In business schools, diverse responses to such concerns were developed, sometimes even causing bitter conflicts among its representatives. Different names for the discipline were advocated to signal its programmatic positioning.

The presentation above has already pointed at the disadvantage that various names were used when speaking on the discipline in question. Names can be used to communicate specific content. Moreover, since the contents of the field were controversial, at least in Germany, so was the use of names by different researchers.

## 8.1 Ideological Controversies in Germany

1. Business economists found themselves in controversies to be accepted as a university discipline on the one hand and the prejudice of supporting profit maximization on the other hand. This difficult positioning is summarized in one sentence: "*From the modest paraphrase as a commercial technique and the ironic acceptance of the defamatory accusation of a academical teaching of an art, the searching path of inquiry passes over the narrowly defined commercial science or commercial business studies and the obliquely formulated antithesis of a self-interestedly oriented private economics doctrine to the comprehensive idea of the discipline as business administration.*"[1] The concept of business administration as an art refers to an advance by *Eugen Schmalenbach*,[2] who in these days was probably the most influential professor of business administration in

[1] Erich Kosiol, *Wegbereiter der Betriebswirtschaftslehre,* Berlin/Stuttgart 1950, 2.

[2] Eugen Schmalenbach, Die Privatwirtschaftslehre als Kunstlehre, *Zeitschrift für handelswissenschaftliche Forschung,* 1911/1912, Vol. 6, 304–316.



K. Brockhoff, *Management Ideas*, Contributions to Management Science,
https://doi.org/10.1007/978-3-031-09962-5_8

academia and in practice. He argued for a technological orientation of the discipline, which should be practice-oriented and practice-proofed. He accepts the derivation of "procedural rules" from practical experience. It is one of three ways of learning a profession: by experience, studying as an art, or developing conclusions from a science.[3] Admittedly, it is not trivial to distinguish explanatory theories derived from sciences from formative technologies of teaching art.[4] It is the explanatory theories that ultimately make it possible to apply them to practice. They may be developed based on experience, which contrasts the "linear model" of scientific development (Sect. 6.2). A similar position was taken by *Frank H. Knight* (1885–1972) somewhat later. After discussing the qualities of leaders and leadership in business he summarizes: "*The difference which we are trying to emphasize between the functions and quality of the technician and the manager can be briefly stated by saying that it is the contrast between science and art . . . The knowledge which guides the solution of these problems is reached less by deliberate and methodical processes which we call science than by direct intuitive judgement, and the operations themselves are guided less by scientific rule than by an immediate creative process."*[5] However, management is more than leadership, and it remains thus open whether this view could and should be extended to the whole discipline.

It is reported that *Eugen Schmalenbach* was the first German to call himself a professor of business administration in 1919. This was not only done because no agreement could be reached on the name of the discipline. It also reflected a dispute on a value judgment, namely what objective should firms have. In *Schmalenbach*'s opinion, the discipline had to acknowledge (or even more: prescribe) objectives reflecting economics at the national level, which would exclude the concept of private economics guided solely by the profit motive.[6] This, however, addresses only *one* side of the argument. The second side concerns the appropriate delimitation of the object of research. Here, among other things, the delimitation of plant or workshop (business for some scholars) and enterprise plays its role.

The dispute over the name of the discipline also leaves traces in the titles of books. *Heinrich Nicklisch* published four editions of "*Allgemeine kaufmännische Betriebslehre als Privatwirtschaftslehre des Handels (und der Industrie) (General commercial business as private economics of commerce and industry)"* in 1920. This title is followed in 1922 and 1925 by two editions, "*Wirtschaftliche Betriebslehre (Business Economics)."* The seventh edition then appeared in 1932 under the title "*Die Betriebswirtschaft (Business Administration)."* The term

[3] Albrecht Daniel Thaer, *Grundsätze der rationellen Landwirthschaft,* 1st and 2nd volume, Berlin 1809, 3 et seq.

[4] Dieter Schneider, *Betriebswirtschaftslehre, Vol. 4: Geschichte und Methoden der Wirtschaftswissenschaften,* München (Munich)/Wien (Vienna) 2001, 306 et seq.

[5] Frank H. Knight, Business management: science or art, *Journal of Business,* 1923, Vol. 6, 5/24.

[6] Sönke Hundt, Zur Theoriegeschichte der Betriebswirtschaftslehre, Köln (Cologne) 1977, 47, fn. 1.

**Fig. 8.1** Wilhelm Rieger *Source*: tobias-bild. Uni-tuebingen.de (accessed February 5, 2022)

"private economics" as a synonym for business economics is quite common, particularly among economists.[7]

Instead of finding a truce with economists, some scholars develop private economics as a label to designate specific content: *"The subject matter (*of the book, K.B.*) are exclusively the private profit-oriented economies, in particular the enterprise, which can at best be called a special kind of business, namely a profit-oriented business,"*[8] writes *Wilhelm Rieger* (1878–1971) (Fig. 8.1).[9] With this definition, he is the most outspoken opponent to *Schmalenbach*. His concept is presented in Fig. 8.2. It defines enterprises as risk-taking, profit-oriented economies operating in a money-based economy rather than a bartering economy.

Enterprises are placed in an *"ordered series"*[10] of economic objects. In ascending order, it encompasses the elements business (plant, business unit), enterprise, national economy, and world economy. Starting from the concept of "doing *business," Rieger* states that the term *"business administration"* is too narrow because *" . . . plants as such are not economic factors at all because in a proper sense they are not engaged in doing business. Rather, they are managed: they are the object but not the subject of any economy. They are purely technical*

[7] Cf. the reference to C. G. Ludovici in Chap. 3.3 (4). Economists also use the term to name national economics, for example: Friedrich List, *Das nationale System der politischen Ökonomie,* Stuttgart/Tübingen 1841, 240 et seq, previously also with reference to Jean Baptiste Say.

[8] Wilhelm Rieger, Einführung in die Privatwirtschaftslehre, Nürnberg (Nuremberg) 1928, 32.

[9] Several errors concerning the biography and the work are mentioned and corrected in: Helmut Marcon/Heinrich Strecker, *200 Jahre Wirtschafts- und Staatswissenschaften an der Eberhard-Karls-Universität Tübingen. Leben und Werk der Professoren,* Wiesbaden 2004, No. 69: Wilhelm Rieger, 517.

[10] Wilhelm Rieger, *Einführung in die Privatwirtschaftslehre,* Nürnberg (Nuremberg) 1928, 32.

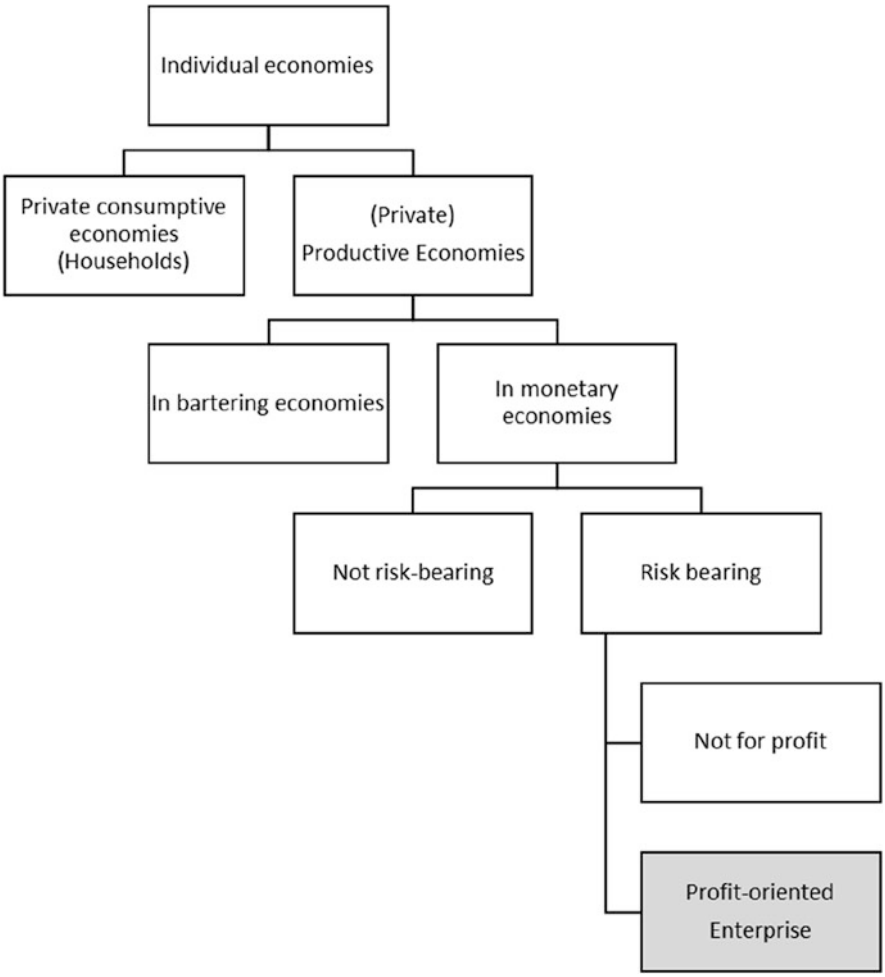


**Fig. 8.2** Rieger's concept of private enterprises, 1928

*institutions and require a superior entity, an economic idea, into which they must be incorporated in order that they may be addressed as economic entities"*[11] The superior entity meant here is the profit-making enterprise.

The characterization of an enterprise by "profit-making" is considered a (probably misunderstood) value judgment not shared in this form by *Schmalenbach* and his disciples. Therefore they reject the notion of "private economics." An extensive debate is devoted to the question of whether profit orientation should be understood as normatively or as descriptively. Even the ethical aspects, which already played a role in *Thomas Aquinas, Martin Luther*,

[11] Ibid., 32.

and *Paul Jacob Marperger*, are taken up again. An extensive excerpt of *Rieger*'s is presented to clarify his position:[12]

> The fact that private economics places the enterprise at the center of its considerations, that it further admits that the entrepreneur must strive for profit and that it finally admits the impossibility of setting limits to this, has earned it the reproach that it is a theory of profit: private economics be the study of the art (sic! K.B.) of making profits. However, private economics . . . has to show what an enterprise is, what goes on in reality. . . . It is by no means the profit motive per se that makes the enterprise so interesting for us, but the enterprise is a most important and characteristic member of an economy with the division of labor . . . . Now, if profit is striven for in the enterprise, private economic theory must say so, for otherwise, it would miss reality . . . For the sake of profit—so we maintain—enterprises are founded, and according to the prospect of making a profit, they must be directed by their management if they wish to survive (in a competitive environment, K. B.).
>
> Whether private economics thus trains its disciples to make a profit nevertheless seems somewhat doubtful. In any case, what it wants is different: it tries to impart knowledge about what we call economics; it does not want to give instructions and recipes for practical action; it also does not want to train business leaders or entrepreneurs, but instead leaves it entirely up to the student what he wants to do with the insight he has gained into economic life. It is not at all out of the question whether future representatives of employers sit at the instructors' feet or future trade union leaders . . . . But private economics is here in a most favorable position (compared to the representatives of business economics, K.B.). Since it only intends to describe our economy, it can speak about everything, including profit, with complete harmlessness and impartiality. After all, no one is advised to become an entrepreneur and to strive for profit . . . If for the reasons explained, private economics knows itself to be free from the suspicion of teaching the pursuit of profit, it nevertheless seems appropriate to raise the question of why the pursuit of profit is often regarded as something dishonorable, particularly as it applies to the merchant. Concerning other professions, strangely enough, people are not so sensitive. No one reproaches an artist, although there it is almost more strange. It is taken for granted that celebrities receive quite respectable incomes and also occasionally fight valiantly for them. People also think it is quite all right for an eminent medical doctor, a busy lawyer, to draw large incomes. Why exists this different attitude towards the merchant? Yes, they object, the other professions earn their income by hard work.—Fine, and the merchant?—Here, the ideas of effortless speculative profits, unfair manipulations, and tricks of all kinds involuntarily force themselves upon us: he makes a profit and exploits his fellow citizens.
>
> Finally, the notion must be combatted as if the pursuit of profit left no room for honest dealing . . . [13]

[12] Ibid., 72 et seq. Similarly: Moritz Weyermann/Hans Schönitz, *Grundlegung und Systematik einer wissenschaftlichen Betriebswirtschaftslehre an Universitäten und Fachhochschulen*, Karlsruhe 1912, 79.

[13] In the German public of the years 2010/2011, salaries of CEOs in the amount of up to € 12 million were criticized heavily, and in 2014 those of € 18 million. The newspaper "Welt" reports on June 30, 2011 an annual income of € 38.5 million for football star Ronaldo (€ 111 million p.a. 2017–2011, Frankfurter Allgemeine Zeitung (FAZ) of March 29, 2021, 23; Gareth Bale, € 30 million, etc.) and for Messi of € 31 million. The TV entertainer Stefan Raab signed a 5-year €185m contract with pro7 media, holds 12.5% in the production company brainpool, and draws income from music productions, according to FAZ, April 16, 2011. Disc jockeys can draw up to $66m p.a: Frankfurter Allgemeine Sonntagszeitung, August 9, 2015, suggesting that opinions have

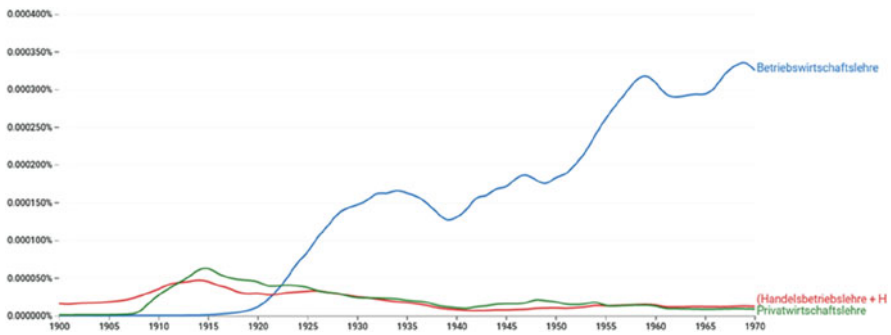


**Fig. 8.3** Citation frequencies of names of the discipline in German literature, 1900–1970 Source: *Google ngrams, accessed January 24, 2022*; Betriebswirtschaftslehre = business administration; Privatwirtschaftslehre = private economics; Handelsbetriebslehre+Handelswissenschaft = commercial science

It becomes clear here that *Wilhelm Rieger* is concerned with a descriptive rather than normative enterprise theory. If, in some places, the word "must" in connection with the objective of profit-making seems to impose a norm, attention must be paid to the "orderly series": the enterprise is placed in a competitive economy or world economy. Risk-taking requires investing in safety reserves out of profits and, in approaching perfect markets closely, zero profit can in any case only be secured if profit maximization is the objective. *Rieger* is undoubtedly aware of the question of an economic order that controls excesses but has not yet answered it in terms of a "social market economy."

*Rieger* had few followers and students but those whom he convinced accepted even more strongly his line of arguments. An example is *Georg Bergler* (1900–1972), who wrote in the preface to his dissertation: "Business administration is teaching an art, private economics is a theory . . . Its research deals with the enterprise, but not with the plant."[14] This quote is directly the master's voice.

*Rieger* was not successful, if judged by the indications in Fig. 8.3. Business administration became the by far most frequently used name of the discipline, particularly after 1920. Only after the successful advent of Operations Research did "management science" attract some attention, while the more engineering-driven concept of "business science" never reached any comparable level of usage. Commercial science, as well as private economics, had had their days between 1900 and 1930. However, why was *Rieger* unsuccessful? The book he wrote came out 11 years after the influential *Schmalenbach* had baptized the

not changed since Rieger published the text in 1928. At least it is reassuring that talent has a more substantial explanatory share in high salaries for athletes than popularity: Joachim Prinz/Daniel Weimar/Christian Deutscher, Popularity kills the Talent star? Factors Influencing Super Salaries in the NBA, *Journal of Business Economics,* 2012, Vol. 82, 789–806.

[14]Georg Bergler, *Der chemisch-pharmazeutische Markenartikel. Darstellung des Wesens, der Absatzformen und des Kampfes um den Markt,* Stuttgart 1933, VII.

discipline. Shortly after that, the economy passed through the worldwide crisis of the 1920s, which directed the attention to more pressing problems than naming a discipline, and soon after that, the planning euphoria of national socialism after 1933 left little room for economic freedom. The view on business in the sense the word is used by *Rieger* was too narrow, as could easily be observed. Imagining a steel company with business units in mining and logistics, etc., that could exchange products internally and externally and that had to determine transfer prices illustrates the point.

Other scholars discuss the name of the discipline with the intention to have it differentiated from other sciences. Some support *Rieger* and his view, however, not always full-heartedly. As an example of such voices, reference is made to the search for demarcation from the technical sciences, which first requires a clarification of the concept of economics:

> . . . it is not only a principle of economics but of rational action in general that the result of economic activity has a greater value than the sacrifices made for it. In today's economy the result . . . is reflected as profit . . . which is expressed in money . . . In the public (öffentlich, K. B.) . . . economy . . . one has the idea that for the amount of the surplus to be achieved (the proceeds over the costs) the consideration for the general public should be co-determining the activities, while the private economy does not need to know such considerations, but rather 'ruthlessly' looks after its own interest. But there are both public economies which neglect this consideration of general interests . . . and there are also private economies which, while looking after their own interests, do not entirely lack consideration for the general public, whereby of course the difficulty always remains as to what is meant by general interest.[15]

As distinguished from economics, it is emphasized that "*private economics is the study of private economic organisms and their functions by looking at them from the point of view of the individual private interest . . . The importance of the private economic interest constitutes the selection principle for private economics . . .*"[16]

2. It is not without a particular tragedy that the opponent in the dispute is not only Marxism or Socialism[17] but primarily *Schmalenbach* (Fig. 8.4). However, the "private economic interest" just mentioned is exactly the point on which academic opinions diverge, at least, once it is considered as a norm.

   *Schmalenbach's* concept of "public economic efficiency" is operational only for profit maximization in perfect markets. Beyond this, there is the "idealist" and the "realist" in Sc*hmalenbach*, who has the societal utility-maximizing

[15] Willi Prion, *Ingenieur und Wirtschaft. Der Wirtschaftsingenieur,* Berlin 1930, 29.

[16] Josef Hellauer, Wege und Ziele der privatwirtschaftlichen Forschung, *Zeitschrift für Handelswissenschaft und Handelspraxis,* 1914/1915, Vol. 7, 218–226, here 223.

[17] This becomes clear in Rieger's subtle allusion that one could describe it with equal composure "once we have transformed to a refined" form of an economy (Wilhelm Rieger, Einführung in die Privatwirtschaftslehre, Nürnberg (Nuremberg) 1928, 73). The argument is also directed against so-called "cathedral socialists." Lujo Brentano, Privatwirtschaftslehre und Volkswirtschaftslehre, *Bankarchiv,* 1912/1913, Vol. 12, 1–6.

**Fig. 8.4** Eugen Schmalenbach. Source: www.institut-wv.de

entrepreneur in mind.[18] In the early years, he considered the "*business economist of this* (his, K. B.) *direction . . . as a state economist"* who, by his own admission in 1931, is not captured by *"the business as a private-sector profit-making institution."*[19] In the fifth edition of his "*Dynamische Bilanz*" (*Dynamic Balance Sheet*), published in 1931, *Schmalenbach* states: "*And so it is not the purpose of our business administration to look at whether and how someone obtains an income or a fortune. The point of our teaching is merely to explore how and in what way the business proves its public economic productivity.*"[20] The author had earlier made explicit that this public economic efficiency had to be the objective of an enterprise. Unconstrained "profit-making" was none of business administration's concern, he thought.[21] It has been shown that this notion is neither carried through without contradiction nor can it be operationalized.[22]

Leaving issues of disclosure aside, profit maximization constrained by observing a public interest can be interpreted as putting a voluntary lid on the rate of return on capital. However, there is no standard for the lid. Individual entrepreneurs or managers are likely to refer to the maximum socially accepted rate of return they can observe in the economy or in their industry. Some of them may not be able to even reach this level such that they can exercise unconstrained

[18] Günter Wöhe, Betriebswirtschaftslehre, Entwicklungstendenzen der Gegenwart, *Handwörterbuch der Betriebswirtschaft,* 4th ed., Stuttgart 1974, Col. 710–747, here 714.

[19] Eugen Schmalenbach, *Dynamische Bilanz,* 5th ed., Leipzig 1931, 94 et seq.

[20] Ibid., 93.

[21] Eugen Schmalenbach, Die Privatwirtschaftslehre als Kunstlehre, *Zeitschrift für handelswissenschaftliche Forschung,* 1911/1912, Vol. 4, 304 et seq.., here 312.

[22] Sönke Hundt, *Zur Theoriegeschichte der Betriebswirtschaftslehre*, Köln (Cologne) 1977, 78 et seq., 110 et seq.

profit maximization. Others may try to find a unified level by collusion, with imaginable consequences for the industry or the economy. An impression of possible consequences was detailed much later in the theory of mandatory rate of return regulations for the public utilities.[23] The analysis of this theory identified:

- Less efficient combinations of production factors than in the case without rate regulation
- Excessive use of capital
- Reduced capital-saving technological progress
- Cross-subsidization of entry into new markets by single-product or multi-product firms that push aside established firms even in the long run and if the defenders are more cost-effective
- Firms operating by *Leontjef* production functions exhibit stronger of the above-mentioned effects than those operating by Cobb–Douglas functions.

Even if the theory did not yet exist in the first half of the twentieth century some of these effects could have become plausible. They do not point at an economically favorable market design.

In the period after the Second World War, we become acquainted with *Schmalenbach*, who argues no more normatively: "*There is no doubt that most businessmen when they make a profit calculation, are concerned with knowing what they have earned. That is tangible and not to be blamed; it is a pillar of economic organization in a free enterprise system. However, we are not interested in this. The essential purpose of business profit for us is the need to determine the success of business operations for the purpose of proper business management.*"[24]

3. The juxtaposition of *Wilhelm Rieger* and *Eugen Schmalenbach* cannot be understood as a dispute between two persons alone. Instead, the discussion about the orientation of business administration, in particular, the question of value judgments on objective functions and its relevance to name the discipline, affects many of the business economists active in the universities. For a precise understanding, it is aggravating that some of the participants in the debate formulate their ideas only vaguely, and more change their opinions over time.

   Like no other business economist of this era, *Schmalenbach* influenced science and practice through consulting, through his publications and the large number of his students; ten of those he mentored during their doctoral studies became

[23] Harvey Averch/Leland L. Johnson, Behavior of the Firm under Regulatory Constraint, *American Economic Review,* 1962, Vol. 52, 1053–1069; A. Takayama, Behavior of the Firm under Regulatory Constraint, *Ibid.,* 1970, Vol. 60, 117–125; William J. Baumol/A. K. Klevorick, Input Choices and Rate of Return Regulation: An Overview of the Discussion, *Bell Journal of Economics and Management Science,* 1970, Vol. 2, 162–190; Alvin K. Klevorick, The 'optimal' fair rate of return, *Ibid.,* 1971, Vol. 3, 122–153; Elizabeth E. Bailey, *Economic Theory of Regulatory Constraint,* PhD Diss., Princeton University, 1972; Axel Sell, *Unternehmensdispositionen bei Rentabilitätsbeschränkungen. Eine theoretische Analyse*, Meisenheim/Glan 1974.

[24] Eugen Schmalenbach, *Dynamische Bilanz,* 10th ed., Bremen-Horn et al. 1948, 14 et seq.

university professors (which must be judged against the background of the still small number of chairholders at the time).[25] The name "business administration" is not entirely new and has a history by itself,[26] and it opened up access to consulting more easily than "private economics." Restricting the name of the young discipline to commercial enterprises in an increasingly industrialized world seemed too narrow anyway. An interpretation of the term in the sense of a "theory of action" or later "decision theory" based on rational decision-making is also unsuccessful.[27] Nor did "individual economics" offer an acceptable alternative since this would also have addressed unintentionally the management of households (Fig. 8.2). The acrimony with which the controversy over the subject name was conducted can also be seen when *Wilhelm Rieger* was refused admission to the "*Association of Lecturers at German Business Schools*." Consequently, he initially rejected the honorary membership of the succeeding organization offered to him in 1957.[28]

Not only the naming of a discipline has a signaling character. The development of a discipline-specific language also contributes to its self-image. Here, too, *Schmalenbach* is formative. Definitions and distinctions of costs, expenses, outlays, expenses on the one hand and benefits, revenues, income, receipts on the other[29] are of great importance for the development of accounting. Because of the paramount importance of accounting in the first years of the scientific development of the discipline, this also applies to the discipline itself.[30]

4. Debates on the objectives of business similar to those in Germany arose in other countries as well, notably in the USA (Sect. 8.2). Corporate social responsibility

[25] Walter Cordes, ed. (on behalf of the Schmalenbach Foundation), *Eugen Schmalenbach. Der Mann-Sein Werk-Die Wirkung,* Stuttgart 1984; David A. Forrester, *Eugen Schmalenbach and German business economics, New York 1993.* A three-part film about Eugen Schmalenbach can be seen at: www.youtube.com/watch?v=gLsMvWFmvU(part1),v=x7nTL9dxuLY&NR=1(part2), v=IRFh2CVdDqs&feature=related (Part 3), accessed August 14, 2011. By the end of his university teaching career in 1933, evidence could be found of ten dissertations written by later university teachers: Klaus Brockhoff, Demografie betriebswirtschaftlicher Hochschullehrer der ersten Generationen, *Betriebswirtschaftliche Forschung und Praxis*, 2014, Vol. 66, 439–457, here 452.

[26] Eduard Baumstark, *Kameralistische Encyclopädie,* Heidelberg/Leipzig 1835, p. 39.

[27] This idea was further developed by Helmut Koch: *Betriebswirtschaftslehre als Wissenschaft vom Handeln,* Tübingen 1975.

[28] Wilhelm Hasenack, Wilhelm Rieger, der Schöpfer einer geschlossenen Privatwirtschaftslehre, 80 Jahre alt, *Betriebswirtschaftliche Forschung und Praxis,*1958, 129–142.

[29] Eugen Schmalenbach, *Kostenrechnung und Preispolitik,* 8th ed., Köln (Cologne)/Opladen 1963, 6 et seq. The historical development steps of the terms are also briefly referred to in this source. Except for the first section, there are no citations or references in this book. Therefore, reference must be made here to Edwin Geldmacher, Grundbegriffe und systematischer Grundriß des betrieblichen Rechnungswesens, *Zeitschrift für handelswissenschaftliche Forschung,*1929, Vol. 33, 1–27. Geldmacher was assistant to Schmalenbach.

[30] Georg Obst, Kaufmännische Betriebslehre. In: Georg Obst, ed., *Das Buch des Kaufmanns,* Vol. II, Stuttgart 1928, here 120 et seq; Eugen Schmalenbach, Unkostenbücher, *Zeitschrift für handelswissenschaftliche Forschung,*1913, Vol. 6, 156.

and requests for a "higher ethical plane" of management were voiced[31] long before the topic re-arrived in the late 1960s and early 1970s.[32] One solution appeared to be including economics courses in the business curriculum, which was standard practice in Germany and remained so until recently. Alternatively, the real level of responsibility should be made transparent by an expanded scope of accounting. In economic terms, socially responsible activities were defined as initiated by a firm, without legal obligation, and having lower marginal profits until the planning horizon than any business investment.[33] Those who consider societal pressure as decisive for defining the actions do not share the economic definition. They hypothesize that the actions might even lead to long-term extra profits,[34] which leads to the question of why management would not discover these actions on their own initiative. Societal pressure may change in contents and strength, which has created the idea of a life-cycle of the relevant topics.[35] To capture the moving target, it is suggested that managements apply market and social research techniques to identify interest groups and their topics. Should the picture of the moving target apply, no long-term stability of actions and reporting can be assured. As critics remarked, determining which wants to satisfy would assign new power to management.[36] While some management reactions to social demands may appear as mandatory, some others could merely improve a company's reputation.[37] Reliable accounting on social responsibility would need to follow principles similar to generally accepted accounting principles.[38] *Raymond Gastil* presented sample principles:

[31] Warren E. Hotchkiss, The basic elements and their proper balance in the curriculum of a collegiate business school, *Journal of Political Economy,* 1920, 28, 89–107; R. C. McCrea, The place of economics in the curriculum of a school of business, *Journal of Political Economy,* 1926, 34, 219–227; C. A. Phillips, The place of economics in the curriculum of a school of business, *Journal of Political Economy,* 1926, 34, 231–233.

[32] Morrell Heald, Management's Responsibility to Society. The Growth of an Idea, *Business History Review,* Vol. 31, 1957, 375–384. European firms subscribed to a "Davos Manifesto": Horst Steinmann, Zur Lehre von der 'Gesellschaftlichen Verantwortung der Unternehmensführung,' *Wirtschaftswissenschaftliches Studium,* 1973, Vol. 2, 467 et seq.

[33] Henry G. Manne, First Lecture. In: Henry G. Manne/Henry C. Wallich, edts., The Modern Corporation and Private Responsibility, Rational Debate Series, American Enterprise Institute for Public Policy Research, Washington/DC 1972, 4 et seq.

[34] Raymond A. Bauer/Dan H. Fenn, jr., *The Corporate Social Audit,* New York 1972.

[35] Meinolf Dierkes in Meinolf Dierkes/Raymond A. Bauer, edts., *Corporate Social Accounting,* New York/Washington/London 1973.

[36] Horst Steinmann, Zur Lehre von der 'Gesellschaftlichen Verantwortung der Unternehmensführung,' *Wirtschaftswissenschaftliches Studium,* 1973, 467 et seq

[37] Franz Böhm, Die Verbesserung des Unternehmensbildes durch bessere Geschäftsmethoden. In: Gustav Schmölders, ed., *Der Unternehmer im Ansehen der Welt,* Bergisch-Gladbach 1971, 186–197, here 187.

[38] American Accounting Association, *A Statement of Basic Accounting Theory,* 1968, 8 et seq.; Ulrich Leffson, *Die grundsätze ordnungsgemäßer Buchführung,* 2nd ed., Wiesbaden 1970.

- . . . the social accountant must look for the main issues of responsibility . . . .
- . . . he must take seriously the complexity of deciding on the benefits and costs of even one item . . .
- Benefits that reflect compliance with government regulations should be distinguished from those that go beyond.
- No evidence should be offered without comparison with previous years, . . . without reference to competitors, . . . without establishing the context of the evidence.
- A common checklist for costs and benefits should be included in all presentations.[39]

The methodological problems are tremendous: utilities have to be converted into money values or vice versa, choice of social activities has to be justified for alternative stakeholder groups with materiality overriding completeness, valuation of items with or without including opportunity costs, circle arguments when social costs evaluate social benefits,[40] etc. Should corporate social responsibility be broadly accepted, it would invite to hand down its costs to the consumers. The number of problems and a change of public agendas have contributed to lessening interest in the field.

Related issues are considered in the debate on shareholder value versus stakeholder value as objectives for companies (Sect. 8.2 (3)). It will be interesting to observe whether very recent approaches toward social entrepreneurship, sustainable entrepreneurship, or social business will be more successful.

## 8.2 Pragmatic Solutions in the USA

Controversies on the name of the discipline could not be found in the USA. As elsewhere, several candidates emerged over time. As indicated in Fig. 8.5, "business administration" has by far the greatest dissemination. "Management Science" gained ground since the 1950s. This name arose due to the dissemination of Operations Research worldwide, with one of the leading journals using the term as its title. "Business Science" had some support after the publication of *Frederick W. Taylor's* book on "*The Principles of Scientific Management*" in 1911 (Sect. 10.2.2). The term appeared too closely linked to time studies and related efforts.

Recently, "business management" has been preferred by many to "business administration" because it signals a greater breadth of the activities covered by this science. Because of the many different uses of the word in a different context, we do not show it in the figure.

The pragmatic acceptance of the name of the discipline by a great majority of scholars overshadows the fact that it faced similar resistance to be accepted as a

[39] Raymond D. Gastil, Social Accounting versus Social Responsibility. In Meinolf Dierkes/Raymond A. Bauer, edts., *Corporate Social Accounting,* New York/Washington/London 1973, 100–104.

[40] R. Charles Moyer/Frank Mastrapasqua, Socio-Economic Accounting and External Diseconomies: A Comment, *The Accounting Review,* 1973, 126.

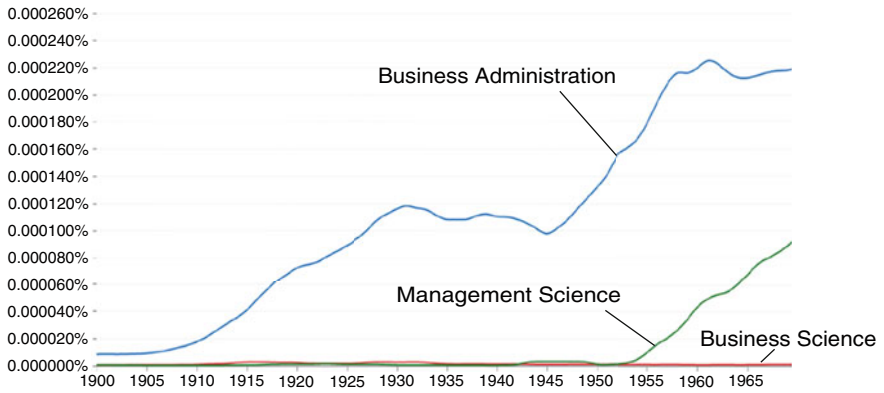


**Fig. 8.5** Frequency of citations of various names of the discipline in English literature, 1900–1970. Source: *Google ngram*, accessed November 7, 2021

university discipline as in Germany. Comparable strategies were used to develop its penetration into the circle of more established professional schools.[41]

Firstly, because the programs originated in liberal arts or humanities departments to make their acceptance easy,[42] the curricula contained substantial parts of traditional liberal arts education. This made majors in business administration more readily acceptable to established departments as if entirely new curricula had been introduced. This was not accepted without critique. Harvard Business School dean *Wallace B. Donham* found a deficit in developing discipline and analytical power in such programs.[43] Secondly, as demonstrated by *Hermann Raydt* (Sect. 7.1, 2 (c)) in his proposal for the school at Leipzig in 1897, the argument of demand by industry[44] was combined with a low-key approach to established academia. Thirdly, claims to serve society and to foster ethical standards were made.[45] Mere profit-making was

[41] The following has significantly benefitted from: Behlül Üsdiken/Matthias Kipping/Lars Engwall, Professional School Obsession: An Enduring Yet Shifting Rhetoric by U.S. Business Schools, *Academy of Management Learning and Education,* 2021, Vol. 20, 442–458. However, in the present paper, the focus is not on clarifying whether and when business schools developed into professional schools. Many of the immediately following quotes are taken from their paper.

[42] Warren E. Hotchkiss, The Northwestern University School of Commerce, *Journal of Political Economy,* 1913, 21, 196–208.

[43] Wallace B. Donham, The unfolding of collegiate business training, *Harvard Graduates' Magazine,* 1921, 29, 333–347; Ralph E. Heilman, Personal qualities requisite for success in business and the role of the school of business in their development, *Journal of Business of the University of Chicago,* 1931, Vol. 4, 11–22.

[44] Isaac A. Loos, The Ann Arbor Conference on higher commercial education, *Journal of Political Economy,* 1903, 11, 457–466; W. E. Hotchkiss, The Northwestern University School of Commerce, *Journal of Political Economy,* 1913, 21, 196–208.

[45] Edmund J. James, *Education of Business Men, I and II*, New York/NY 1892, 14; Harlow S. Person, The Amos Tuck School of Dartmouth College, *Journal of Political Economy,* 1913, 21, 117–126; E. D. Jones, Some propositions concerning university instruction in business

considered to narrow an objective for business activities.[46] In both respects, the combination of curricula with liberal arts appeared attractive. After the world economic crisis of 1929 that was both attributed to malfunctioning of politics and economics, the critical claims were strengthened and renewed.[47] In this respect, it should be mentioned that the first Harvard Business School dean had been a doctoral student of *Gustav Schmoller,* who was among those economists who founded the *Verein für Socialpolitik. Eugen Schmalenbach,* as mentioned above (Sect. 8.1 (2)), searched for a formula for "public economic efficiency" of firms and asked managers to accept societal demands in their decisions. He was not alone but supported primarily by those who supported a normative approach to business administration, like *Heinrich Nicklisch.*

administration, *Journal of Political Economy,* 1913, 21, 185–195; Wallace B. Donham, The Emerging Profession of Business, *Harvard Business Review,* 1927, 5, 401–405.

[46] Leon C. Marshall, The College of Commerce and Administration of the University of Chicago, *Journal of Political Economy,* 1926, 34, 289–326.

[47] Ralph E. Heilman, Personal qualities requisite for success in business and the role of the school of business in their development, *Journal of Business of the University of Chicago,* 1931, Vol. 4, 11–22; Leverett S. Lyon, A ten-year look ahead in business education, *Journal of Business of the University of Chicago,* 1932, Vol. 5, 123–132; Wallace B. Donham, The failure of business leadership and the responsibility of the universities, *Harvard Business Review,* 1935, Vol. 11, 418–435.

# Chapter 9
# Decline Under Political Influences and Two New Beginnings: The Cases of Germany


**Abstract** Firms are objects of business administration. They are embedded in societies that favor specific economic orders. These contextual conditions co-determine the problems faced by business and its management. This is reflected in the mainstream of business administration research and teaching. The historical developments of Germany between 1933 and 1990 provide three vastly different cases to illustrate contextual influences. Firstly, the decline of business administration in the "obligated economy" of the Nazi period is sketched. Secondly, the very limited scope of the discipline in the Socialist economy of East Germany is shown. Thirdly, new theoretical beginnings in West Germany are presented on the background of alternative developments. Gutenberg's very influential approach had its beginnings off-mainstream in the 1930s.

When the question was asked: "What is a firm?" (Sect. 5.2.2), it was argued that the characteristics of types of firms could depend on the political-economic system which surrounds the firm. In the more recent German history, this dependency and its consequences for business management as a discipline can be clearly demonstrated. This will be shown for the period of the so-called Third Reich on the one hand and, on the other hand, the German Democratic Republic (GDR) established in Eastern Germany between 1949 and 1990. The Third Reich is the period of the reign of the National Sozialistische Deutsche Arbeiterparteil (NSDAP: National Socialist German Workers Party) between January 30, 1933 (when *Adolf Hitler* came to power) and May 8, 1945 (when the Second World War ended by unconditional surrender). Two aspects are considered here: the human side and the decline of the discipline.

## 9.1 The Period 1933–1945

### *9.1.1 The Human Aspects*

The human aspects of the reign of the Nazi Party became visible shortly after *Adolf Hitler* was elected *Reichskanzler* (Reich-Chancellor) and assumed step-by-step more power than seen before. For university lecturers, it resulted in the withdrawal from



K. Brockhoff, *Management Ideas*, Contributions to Management Science,
https://doi.org/10.1007/978-3-031-09962-5_9

teaching, suppression, emigration, flight from German territory, murder or inducement to suicide, or other forms of persecution.[1] The reason for these developments is most often seen in the fact that the person concerned is Jewish or has Jewish relatives.[2] Only 17 days after the "Law for the Restoration of Professional Civil Service" was passed, *Schmalenbach* wrote a resignation letter to the dean of his Cologne University department (April 24, 1933) claiming that the "*conception of the new administration on teaching and the freedom of the university*" made it impossible for him to continue with teaching as a university professor.[3] This case is not only interesting because it happened immediately after the new law was passed but also because, ironically, significant pieces of *Schmalenbach*'s research results became mandatory standards in 1937. This refers to the "Uniform System of Accounts for the German Reich" and the "Guidelines for the Organization of Bookkeeping".[4]

On the one hand, personal suppression was caused to some by the refusal to support National Socialism, indicated sometimes by long-delayed or only formal support of this state ideology. On the other hand, idealistic support of the ideology of varying degrees was practiced by others.[5] From 1939 onwards, at least formal support of the state ideology was necessary for university lecturers because, according to a law of February 28, 1939, membership of the party or one of its many sub-organizations (such as the NS Automobile Drivers Corps) was made

[1] These developments can be attributed, among other things, to the "Law for the Restoration of the Professional Civil Service" of 7 April 1933. The most detailed description of the conditions at German universities and the human histories of the lecturers are given in: Peter Mantel, *Betriebswirtschaftslehre und Nationalsozialismus. Eine institutionen- und personengeschichtliche Studie unter besonderer Berücksichtigung der Opfer des NS-Regimes unter den Hochschullehrern der BWL,* Diss. Free University Berlin 2007 (=Wiesbaden 2009). The author reports one murder, three cases of suicide, 11 emigrants, six dismissals or similar events, and at least 14 delayed or prevented careers of university teachers. See also: Dieter Schneider. *Business Administration.* Vol. 4*, Geschichte und Methoden der Wirtschaftswissenschaft*, München (Munich)/ Wien (Vienna) 2001, 218 et seq.

[2] For this reason Eugen Schmalenbach applies for emeritus status, which takes effect on October 1, 1933 because he does not want to divorce his Jewish wife. See: Erich Potthoff, Betriebswirtschaftslehre im Nationalsozialismus (1933–1945) bei politischer Gleichschaltung und staatlicher Wirtschaftslenkung. In: Eduard Gaugler/Richard Köhler, eds., *Entwicklungen der Betriebswirtschaftslehre. 100 Jahre Fachdisziplin - zugleich eine Verlagsgeschichte,* Stuttgart 2002, 87–110, here 105.

[3] Letter of Schmalenbach to the dean of the department, April 24, 1933: Schmalenbach Society Archive 18, 23. For another reason, see the preceding footnote.

[4] The underlying research is found in different publications but primary sources are: Eugen Schmalenbach, Der Kontenrahmen, *Zeitschrift für handelswissenschaftliche Forschung,* 1927, Vol. 21, 375–402, 433–475. Eugen Schmalenbach, *Der Kontenrahmen,* 4th., revised ed., Berlin 1935.

[5] A critical account on behavior of some of his colleagues and the decline of research quality was given after the War by Hanns Linhardt, who had been dismissed from university service in 1938 because of open disagreement with the Nazi ideology: Die Betriebswirtschaft an den deutschen Hochschulen, *Neue Betriebswirtschaft* = supplement to *Betriebs-Berater,* January 20, 1949, 1–4.

mandatory for the employment of a civil servant. In rare cases, university presidents initiated party memberships for a particular applicant to a professorship to ensure that this person would be opposed by the well-organized party representatives of the lecturers.

It was determined that of 26 German or German-born business economists, 13 (including two cases of doubt) were forced to emigrate. Of the remaining, at least five had already worked abroad before 1933, and seven were drawn to universities in German-occupied territories. Of those forced to emigrate, three returned to Germany after the war.[6] Although the remaining German business economists had some contacts abroad, these were comparatively sparse, "*. . .since most German business economists did not take advantage of the opportunities that would have been available to them, which were in any case severely restricted or instrumentalized by National Socialist authorities. At least there are exceptions, especially in accounting. First of all, translations of essential works stand out, for example in Japan or Scandinavian countries*."[7] The *Accounting Review* published seven German contributions[8] during its first 20 years (1925–1945).[9] These articles are predominantly relatively short, but this was general habit in this journal at the time. Only two of the contributions were submitted after 1933. Except for the contribution by *Schmaltz*, essential questions of accounting are addressed in each case with a high degree of topicality.

The tendency that had already become apparent before 1933 was reinforced in the Third Reich: the development of German business administration became "*largely isolated from international theoretical influences*" until 1945.[10] Besides political reasons, this is due to the concentration of research on accounting and accountancy, which was to a large part determined by national legal frameworks.

[6] Eduard Gaugler/Peter Mantel, Internationale Kontakte der deutschen Betriebswirtschaftslehre im Dritten Reich (1933–1945). In: Michael-Jörg Oesterle/Joachim Wolf, eds., *Internationalisierung und Institution,* Wiesbaden 2005, 449–480, 8 et seq.

[7] Ibid.

[8] This refers to authors who lived in Germany as university professors. For example, Adolph Matz's (1905–1986) works are not counted since this Heidelberg-born professor at the Wharton School had already assumed American citizenship in 1933.

[9] Kurt Schmaltz, The Business Periodicals of Germany, *Accounting Review*, 1930, Vol. 5, 231–234. Fritz Schmidt, The Importance of Replacement Value, *Ibid.,* 1930, Vol. 5, 235–242. Fritz Schmidt, The Importance of Replacement Value, *Ibid.,* 1931, Vol. 6, 289–293. Walter Weigmann, Legal and Economic Concepts of the Balance Sheet in Germany, *Ibid.,* 1932, Vol. 7, 103–106. Wilhelm Hasenack, Depression Balance Sheets and Present Day Value, *ibid.,* 1933, Vol. 8, 239–242. Erich Kosiol, Bases of Valuation in German Corporate Balance Sheets, *ibid*., 1937, Vol. 12, 355–360. Erich Kosiol, Annual Financial Statements of German Corporations, *ibid.,* 1938, Vol. 13, 183–191.

[10] Eduard Gaugler/Peter Mantel, Internationale Kontakte der deutschen Betriebswirtschaftslehre im Dritten Reich (1933–1945), in: Michael-Jörg Oesterle/Joachim Wolf, eds., *Internationalisierung und Institution,* Wiesbaden 2005, 449–480.

In their publications, researchers who remained in office[11] behaved in part supportive of the system, neutral to the system, or tried their best to be independent of it.[12] As an example of idealistic support for National Socialism, reference is made to *Heinrich Nicklisch*. His contributions to business administration have already been referred to several times, including his idealistic, value-laden position on organization. Relatively late, he became a member of the "National Socialist German Workers' Party."[13] This is an indication that *Nicklisch* can hardly be counted among the most resolute champions of its policies. It is precisely for this reason that his statements on "Business Administration in the National Socialist State" in July 1933 are particularly noteworthy and irritating:

> Business administration has not yet indicated in what way it intends to participate in the tasks of the new state. With the present issue of our journal, we, therefore, deliberately raise this question. It is an appeal for cooperation and, at the same time, in its introductory essay, presents an outline of the urgent tasks to be solved by the discipline....
>
> What follows under this headline is an appeal to business administration to place all its forces at the disposal of the leader of the new Germany, to define the objectives of its research according to the political needs and, first and foremost, to help clarify the decisive interrelationships.
>
> To spread this type (a manager inclined towards meeting needs defined by the framework of state planning, K.B.) must not be a pious wish, but it is necessary to go to work and to participate with all one's strength in the movement which has set itself this gigantic task of education. Business economists in particular, who have to look after the conditions in the business communities, are responsible for a large part of the work to be done. Therefore, let us get to work and move forward with all our strength![14]

With this preface, an article dealing with serious technical problems of remuneration of workers is introduced. Similar statements conclude the article. First of all, this structure with its strong reference to the guiding ideology is interesting; similar

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[11] An overview of their careers and publications as of 1938 is given in: Institut für angewandte Wirtschaftswissenschaft, ed., *Die wirtschaftswissenschaftlichen Hochschullehrer an den reichsdeutschen Hochschulen und an der TH Danzig,* Stuttgart/Berlin 1938.

[12] Erich Potthoff, Betriebswirtschaftslehre im Nationalsozialismus (1933–1945) bei politischer Gleichschaltung und staatlicher Wirtschaftslenkung. In: Eduard Gaugler/Richard Köhler, eds, *Entwicklungen der Betriebswirtschaftslehre. 100 Jahre Fachdisziplin - zugleich eine Verlagsgeschichte,*Stuttgart 2002, 87–110, here 92.

[13] Membership was recorded probably in 1940 or 1942: Sönke Hundt, *Zur Theoriegeschichte der Betriebswirtschaftslehre, Köln (*Cologne) 1977, 95 et seq. Among business economics professors, he identifies 5 NSDAP members and 3 SA members based on a list from 1938 (in 1943 62 professors were mentioned in the German Reich, five of which had been retired). Hundt asserts that membership alone does not always indicate a "fascist attitude," primarily when membership in the SA "could protect against further expressions of loyalty." See also: Peter Mantel, *Betriebswirtschaftslehre und Nationalsozialismus. Eine institutionen- und personengeschichtliche Studie unter besonderer Berücksichtigung der Opfer des NS-Regimes unter den Hochschullehrern der BWL,* Diss. FU Berlin 2007 (=Wiesbaden 2009), 74.

[14] Heinrich Nicklisch, Die Betriebswirtschaftslehre im nationalsozialistischen Staat, *Die Betriebswirtschaft - Zeitschrift für Handelswissenschaft und Handelspraxis,*1933, Vol. 26, 173–177.

structures are found in publications from other dictatorships.[15] Secondly, it is remarkable how easily the "political design" is taken over as normative or prescribed notion from outside the university.[16] Deviations from ideology are not accepted since "business administration" is supposed to make "all forces" available for its support. Of course, there is no mention here of freedom of teaching. This experience was one of the reasons to have this right guaranteed in Article 5 of the Basic Law for the Federal Republic of Germany later in 1949, both for individuals and their integration into an institution. The last sentence in the sample text above is reminiscent of an earlier (1920) appeal: "*Der Weg aufwärts! (The way up!) Organisation!*" by *Heinrich Nicklisch,* which also announced an idealistic and normative approach to organization; further appeals by the same author were popularized, also by radio lectures.[17]

Extreme positions were voiced, among few others, by *Walter Thoms* (1899–1995). He intended to create a "national socialist business administration" that foresaw, besides others, a right to be occupied. He "totally rejected" the assumed "predominant and prevalent" principle of business rentability.[18] How a business could be run successfully under such terms was not explained in detail.

On the other side, some of the scholars who held views that were in contrast to the new mainstream developed behaviors of adaptation to the circumstances. *Guido Fischer* (1899–1983) worked on human relations with an ethical background in Catholicism. This position gave rise to an interview question after World War II:

> Question: Was there not a danger in the Third Reich that those in power would misuse your basic concept of men in their obligation to the community?

[15] This structure applies, for example, to socialist systems. Wolfgang Leonhardt, who in his autobiography "*Die Revolution entlässt ihre Kinder*" (Cologne/Berlin 1955) describes his transformation from a communist educated in the Soviet Union to an opponent of communism, has spoken to the author of a rule to be observed for the structure of essays: First, the classics of socialism, supplemented by leading resolutions at party congresses, then the problem, and finally the demand for the support of the party in the sense of the solution to the problem put forward. Rainer Schwarz reports that one of his publications was criticized in Eastern Germany in 1983 because no one representative from the "Politburo" was named after Marx, Engels, Lenin. He blamed "oblivion." Rainer Schwarz, Operations Research in der DDR von 1950 bis 1999. In: Wenzel Matiaske/Dieter Sadowski, *Ideengeschichte der BWL II,* Wiesbaden 2022 (in preparation).

[16] See also: Jan-Otmar Hesse, "Die deutsche Wirtschaftswissenschaft muss nationalsozialistisch werden." Das Beispiel der Frankfurter Wirtschafts- und Sozialwissenschaftlichen Fakultät zwischen 1933 und 1945. In: Werner Abelshauser/Jan-Olaf Hesse/Werner Plumpe, eds, *Wirtschaftsordnung, Staat und Unternehmen. Neue Forschungen zur Wirtschaftsgeschichte des Nationalsozialismus,* Essen 2003, 151–180. The quotation in this title is taken from the (subsequently little effective) "Richtlinien für das Studium der Wirtschaftswissenschaft" (Guidelines for the Study of Economics) of the Reich Ministry of Science of May 2, 1935.

[17] Heinrich Nicklisch, *Neue deutsche Wirtschaftsführung,* Stuttgart 1933; Heinrich Nicklisch, *Lenkung der Wirtschaft,* Stuttgart 1935.

[18] Walter Thoms, *Die Wirtschaftstheorie im Dienste der Leistungssteigerung*. In: Bericht über den Tag der deutschen Wirtschaftswissenschaft 1938, 75 et seq. (quoted after: Sönke Hundt, *Zur Theoriegeschichte der Betriebswirtschaftslehre*, Köln (Cologne) 1977, 112).

> Answer: The danger was there, and I also saw it. That is why I switched to a relatively neutral field of work, namely defense economics, especially pricing in a state-controlled economy. This work enabled me to work as a business economist for a relatively long time without being disadvantaged because of my religious beliefs and ties.[19]

We may leave the presentation of other alternative behaviors of business researchers to the following sections.

### *9.1.2 Mainstream Business Administration*

1. Business administration is very strongly influenced by the economic policy or order of markets of the Reich government, which in itself is dominated by the Nazi Party. This is explicitly intended: "*The economic sciences have not played a decisive role in the successes of National Socialist economic policy. They were, and they are merely aids in the hands of leadership which draws its strength from the National Socialist ethos, its unlimited authority and its decisiveness.*"[20] It is evident, however, that ethos, unlimited authority, and decisiveness do not yet constitute a coherent economic policy model that could at the same time define a systematic context for business and business management.
   Party principles intended to guide economic policy outlined in 1932 include: Right to work or a guaranteed employment; abolition of any income earned without labor or effort; discontinuing the bondage of interest payments (referring to the burden of interests and repayments of loans necessary to meet the obligations of the state resulting from the Versailles peace treaty of 1919); nationalization of trusts; profit sharing of employees; the dominance of public interests over individualism (or achieving common welfare over individual gain).[21] These political principles do not define a system free from contradiction. So it is no surprise when *Peter Mantel* concludes: "*All attempts to impose a National Socialist business administration ultimately failed. It was not the ideological protagonists of the ethno-nationalist* (völkisch, K. B.) *business community who were in demand, but expedient rational experts.*"[22]
   However, from 1936 onwards and against the background of *Hitler*'s planning "war economics" became a new and important topic within business administra-

[19] Hans Friedrichs/Helmut Reichsvilser, Interview with Guido Fischer (1979), reprinted in: Eduard Gaugler, ed., *Guido Fischer 1899–1983,* FBS-Schriftenreihe, Mannheim 1999, Vol. 55, 219–229, here 221.

[20] Hermann Funke, Autoritäre Marktregulierung und Preisgesetzlichkeit, *Zeitschrift für handelswissenschaftliche Forschung,* 1935, Vol. 29, 617–634, here 633.

[21] Harald Braeutigam, *Wirtschaftssystem des Nationalsozialismus*, Berlin 1932,1 et seq.

[22] Peter Mantel, *Betriebswirtschaftslehre und Nationalsozialismus. Eine institutionen- und personengeschichtliche Studie unter besonderer Berücksichtigung der Opfer des NS-Regimes unter den Hochschullehrern der BWL*, Diss. FU Berlin 2007 (=Wiesbaden 2009), 69.

tion.[23] The economic order was described by a new term, namely the system of "obligated economy"[24] and later that of a "war-obligated economy."[25] In contrast to a rationally planned *system,* this economic order developed frameworks for managerial actions gradually ("emergent," i.e., arising through opportunity or necessity), following a sequence of political compromise decisions; unclear, sometimes contradictory powers of competence and instruction,[26] informal voting and negotiations, and use of representative power by reference to the will of hierarchically higher leaders are the orders of the day.[27] What develops from this as an economic "order" is contradictory and difficult to describe.[28]

Companies were often members of a cartel and an *industry organization* ("Reichsgruppe," "Industriegruppe," "Hauptausschuss," etc.).[29] The latter facilitated the enforcement of government directives. "*In May 1942, the 'heads of the*

[23] In chronological order up to and including 1939, reference is made to: Guido Fischer, Wehrwirtschaft, *Die Betriebswirtschaft,* 1936, Vol. 29, 104–107; Guido Fischer, Wirtschaftliche Mobilmachung, *ibid*.,121–126; Guido Fischer, Staat und Kriegswirtschaft, *ibid.,*213–216; Hans Mauve, Zur betrieblichen Aufwandsrechnung, *ibid.,* 233–236; Otto Hintner, Die Bedeutung der betriebswirtschaftlichen Organisation für die wirtschaftliche Mobilmachung, *Zeitschrift für handelswissenschaftliche Forschung,* 1936, Vol. 30, 457–464; F. Wille, Die Senkung der industriellen Kriegskosten als gemeinwirtschaftliche Aufgabe, *ibid.,* 464–486; Guido Fischer, Begriff und Wesen der Wehrwirtschaft, *Zeitschrift für Betriebswirtschaft,* 1937, Vol. 14, 337–391; Fritz Schmidt, Kriegs- und Rüstungsgewinn, *Ibid.,* 1–11; Otto Hintner, Wirtschaftsstruktur und Wehrbereitschaft, *Zeitschrift für handelswissenschaftliche Forschung,* 1938, Vol. 32, 249–269.

[24] For example: Fritz Huhle, Betriebsdisposition in staatlich geführter Wirtschaft, *Zeitschrift für Betriebswirtschaft,* 1936, Vol. 13, 69–80.

[25] Erich Potthoff, Betriebswirtschaftslehre im Nationalsozialismus (1933–1945) bei politischer Gleichschaltung und staatlicher Wirtschaftslenkung, in: Eduard Gaugler/Richard Köhler, eds, *Entwicklungen der Betriebswirtschaftslehre. 100 Jahre Fachdisziplin - zugleich eine Verlagsgeschichte*, Stuttgart 2002, 87–110, here 90, 100, with reference to the relevant sources.

[26] This was also true within the political system. The Reich's Minister of Economics and Reichsbank President Hjalmar Schacht "had to make the painful experience that Hitler did not care about the ancestral competences of his ministers and consciously promoted the Darwinian competition between Göring and him (i.e. Schacht, K.B.)": Christian Kopper, *Hjalmar Schacht. Aufstieg und Fall von Hitlers mächtigstem Bankier*, München (Munich)/Wien (Vienna) 2006, 318.

[27] Michael von Prollius, *Das Wirtschaftssystem der Nationalsozialisten 1933–1939, Steuerung durch emergente Organisation und politische Prozesse*, Paderborn et al. 2003, 78 et seq.

[28] Christoph Buchheim/Jonas Scherner, Anmerkungen zum Wirtschaftssystem des 'Dritten Reichs'. In: Werner Abelshauser/Jan-Olaf Hesse/Werner Plumpe, eds., *Wirtschaftsordnung, Staat und Unternehmen. Neue Forschungen zur Wirtschaftsgeschichte des Nationalsozialismus*, Essen 2003, 81–97: Entrepreneurial activity was intended to promote "at the same time the extra-economic goals of the Nazi state. The management of raw materials replaced free market purchases, competitively formed market prices were replaced by prices manipulated by the state. In addition, there is massive state demand... However, the preceding analysis has also shown that, in general, neither contracting and production nor industrial investment was controlled by direct state instructions" (Ibid., 96). Of course, this does not exclude indirect controls, including risk-sharing contracts.

[29] Concise explanations of these keywords can be found in: Heinrich Nicklisch, ed., *Handwörterbuch der Betriebswirtschaftslehre,* 2 Vol., 2nd ed., Stuttgart 1938.

*main committees and special committees and the main and special rings' were instructed to carry out, in future, the tasks assigned to them not by 'persuasion' but 'by clear instructions and orders given to industry*.'"[30] Since there is basically no confidence in the ability of markets regulated prices are determined more and more by the administration.[31] Thinking adopting technical or quantity terms—anticipated and criticized early on by business economists[32]—dominates over economic thinking,[33] and this, in turn, is supplemented by the principle of cost-plus-fixed fee pricing regulations.

It is stated that National Socialism, by *"... overcoming capitalism and the free market economy, and following the establishment of a military economy with strongly planned elements and economic autarky, it was intended to decouple the German economy from global economic dependencies.*"[34] In this environment, the more system-neutral business economists find their niche by interpreting the proliferating web of regulations governing accounting or pricing. These papers are sometimes very industry-specific and rich in detail,[35] but with little theoretical

[30] Harold James, *Krupp. Deutsche Legende und globales Unternehmen,* München *(*Munich) 2011, 217, with reference to "An die Führung der Ausschüsse und Ringe" in: Nachrichten des Reichsministers für Bewaffnung und Munition, 6 May 1942, Krupp Historical Archive, FAH 24/742. (Harold James, *Krupp. A History of the Legendary German Firm*, Princeton/NJ 2012).

[31] Wilhelm Hasenack, *Unternehmertum und Wirtschaftslähmung. Die Dauerkrise in den deutschen Unternehmungen und die Voraussetzungen des wirtschaftlichen Aufstiegs,* Berlin 1932, 133: "As a business economist I see above all one danger: that in a centrally planned economy even more than in a free economy the economic optimum is neglected in comparison with the technical optimum." The author also points to Walter Mahlberg: Die Betriebstypen der freien und gebundenen Wirtschaft. In: Max Richard Behm, *Öffentliche Hand und Wirtschaftsgestaltung. Beiträge zur Erkenntnis der Problematik gegenwärtiger Wirtschaftsgestaltung*; Festschrift für Kurt Wiedenfeld zum 60. Geburtstag, Leipzig 1931 (reprint 1989), 20–45.

[32] Harold James, *Krupp. Deutsche Legende und globales Unternehmen,* München (Munich) 2011, 278, with a reference to J. Winschuh, *Gerüstete Wirtschaft,* Berlin 1940.

[33] This is also very well elaborated in the example of the "Volkswagen (People's Car)", its economically unrealistic concept and the world of thought of Heinz Nordhoff, the general director of Volkswagen GmbH in the post-war period: Heidrun Edelmann, *Heinz Nordhoff und Volkswagen. Ein deutscher Unternehmer im amerikanischen Jahrhundert*, Göttingen 2003. Cf. Arthur Schweitzer, Der ursprüngliche Vierjahresplan, *Jahrbücher für Nationalökonomie und Statistik,* 1956, Vol. 168, 348–396, esp. 351; Hitler demands ore mining "without regard to cost" based on a memorandum by Hjalmar Schacht; Adam Tooze, *Ökonomie der Zerstörung. Die Geschichte der Wirtschaft im Nationalsozialismus*, München (Munich) 2007, 143 et seq. (Adam Tooze, The Wages of Destruction. The Making and Breaking of the Nazi Economy, London 2006).

[34] Eduard Gaugler/Peter Mantel, Internationale Kontakte der deutschen Betriebswirtschaftslehre im Dritten Reich (1933–1945). In: Michael-Jörg Oesterle/Joachim Wolf, eds, *Internationalisierung und Institution,* Wiesbaden 2005, 449–480.

[35] For example: L. Hilling, Der Einfluß der Faserstoff-Verordnung auf Kalkulation und Preispolitik im Einzelhandel, *Die Betriebswirtschaft,*1935, Vol. 28, 82–87; Carl Wirtz, Grundsätzliche Bemerkungen zur Seifenpreis-Anordnung, *Die Betriebswirtschaft,* 1941, Vol. 34, 25–29; Karlfranz Hajek, Kleiderkarte und Punkteverrechnung im Textileinzelhandel, *ibid.,* 30–36.

relevance. Of course, the problem of finding the "fair price" reappears[36] without it being solved in any other way than by hoping for the state or managers observing a higher interest. This can lead to remarkable circular reasoning: "*The main task of authoritarian economic management in the future will be to lead the enterprises to a correct (sic!) cost accounting and a price policy adapted to national economic needs (sic!) and, in accordance with the progress of the educational work (*meaning the indoctrination by the party, K. B.*), to restore the elasticity of the industrial market by gradually re-establishing the self-regulating function of free market prices*"[37] The juxtaposition of so-called "individualistic" and "universalistic" pricing oriented toward the needs of the general public recognizes serious disadvantages of the latter but believes in the insight of "good leaders" will overcome them.

"*The economy dies because of the private egoism of those who do business. The will to (*strengthen, K. B.*) community, on the other hand, keeps it alive and leads it to flourish. Its permanent form is corporative. It can be relatively free at most in transitory periods of comparatively short duration.*"[38] This heading is programmatic. The thought of *Adam Smith*, according to which bakers, brewers, and butchers do not act out of benevolence but out of self-interest[39] and thus serve the whole under the control of functional and functioning competition, seems to be completely unknown. However, precisely this represents the "normative context" of a competitive economy. This is also astonishing because not only *Gutenberg* had recently formulated very clearly: "*In general, prices have the task of directing the flows of goods into the individual uses in such a way that the most important uses have priority in each case. This regulative function of prices is expressed in the fact that they are keys to the distribution of goods.*"[40]

Furthermore, it remains unclear how economic planning should be organized. *"It can already be seen that the German economy of the future will not be a planned economy with orders and execution in the Russian sense, but—with the regression of the corporations and the involvement of the medium and small enterprises—a planned economy with sharply controlled coefficients, in which adaptation and correctness depend on the intellectual cooperation of each individual . . . . It is a necessity of helping to create this economic system.*

*They (*the cartels, K.B.*) owe their existence and the importance they have acquired to the confusion of the free economy based on the division of labor and*

[36] Heinrich Grunert, Der gerechte Preis im neuen Wirtschaftsrecht. Dargestellt am Beispiel der Wettbewerbsverordnung vom 21. Dezember 1934, *Die Betriebswirtschaft,* 1935, Vol. 28, 73–78; Kurt Schmaltz, Selbstkosten und gerechter Preis, *Ibid.,* 78–82.

[37] Hermann Funke, Autoritäre Marktregulierung und Preisgesetzlichkeit, *Zeitschrift für handelswissenschaftliche Forschung,* 1935, Vol. 29, 617–634, here 633.

[38] Heinrich Nicklisch, *Neue deutsche Wirtschaftsführung,* Stuttgart 1933*,* 58.

[39] Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, Vol. 1, London 1776, 17.

[40] Erich Gutenberg, *Die Unternehmung als Gegenstand der betriebswirtschaftlichen Theorie*, Berlin/Wien (Vienna) 1929, 33 et seq.

*the lack of sufficient coordination of the individual economic agents.... The difficulties that gave rise to the cartels resulted from the fact that everyone was doing business as if he, he alone, were the whole. Decisive normative relationships were thrown to the wind....*

*What is needed here is a complete spiritual conversion that will enable the individual to respect the normative connections and integrate himself as the situation demands. This conversion must also transform entrepreneurship from within: fill it with a spirit that is no longer so much attuned to revenue as to the tasks that the economy poses as a need-covering economy."*[41]

That the market is anarchy is an early socialist idea: *"De l'anarchie industrielle et scientifique (Of industrial and scientific anarchy)"* is the title of a booklet by *Charles Fourier* (1772–1837) published in Paris in 1847.[42] *Heinrich Nicklisch* says: "*The result of the economy with a division of labor among independent enterprises up to the time of the National Socialist revolution is that it fails both in the relationship of the workers to the enterprise as in the relationship of the value-producing enterprises to each other and the households*."[43] As already mentioned, no systematically structured economic ordering is developed in practice.

This situation may have contributed to the loss of the theoretical foundation of business administration and its analytical depth that it was occasionally praised for in the earlier period. Whether this really handicapped the emigrants, as *Mantel* thinks,[44] or helped them to gain an advantage would have to be examined more closely. Accounting's strong ties to national codified law might have been more decisive for a handicap.[45]

The missing of a theoretical foundation becomes clear when practical problems are addressed. Pricing was already mentioned. As a further example, we return to an essay by *Nicklisch* on the determination of wages (incentive wage or hourly wage) under conditions of high unemployment:[46]

> What helps us can only be to work according to the principle: "Let everyone contribute his best." This underlines the principle of achievement. It includes the just wage related

[41] Heinrich Nicklisch, Die Betriebswirtschaftslehre im nationalsozialistischen Staat, *Die Betriebswirtschaft,* 1933, Vol. 26, 173–177, here 176.

[42] Later than Fourier, the anarchist system of competition is spoken of by: Karl Marx, *Das Kapital.* Berlin 1962, Vol. 1, 377, 522 (1st ed. 1867).

[43] Heinrich Nicklisch, *Neue deutsche Wirtschaftsführung,* Stuttgart 1933, 73.

[44] Peter Mantel, *Betriebswirtschaftslehre und Nationalsozialismus. Eine institutionen- und personengeschichtliche Studie unter besonderer Berücksichtigung der Opfer des NS-Regimes unter den Hochschullehrern der BWL*, Diss. FU Berlin 2007 (=Wiesbaden 2009), 448.

[45] Horst-Günther Frohwein, Studienstatistik der Wirtschaftswissenschaften. In: Verband deutscher Diplom-Kaufleute, ed., *Festschrift zur Halbjahrhundertfeier,* 1955,121–128.

[46] Heinrich Nicklisch, Die Betriebswirtschaftslehre im nationalsozialistischen Staat, *Die Betriebswirtschaft - Zeitschrift für Handelswissenschaft und Handelspraxis,*1933, Vol. 26, 173–177, here 173 et seq.

> to performance. It is the wage that considers that the worker is a performing member of a community that must prosper if he is to be able to perform and live. Here the demand for the care of the common benefit resounds. For the individual who performs, however, this goes beyond a just relation between wage and performance: he must be able to do something more for the entirety; he must be ready to perform even without receiving a value back; he must be able to increase this devotion to the point of sacrifice. But the community, if it wants to exist, must always acknowledge these achievements; it must always be ready to reward the contributions of its members according to their value. It must never refrain from applying the principle of achievement concerning its members if it wishes to advance. If this applies above all in the individual's relationship to the nation and the state, it also applies accordingly to every entirety and its members. For enterprises, too, it means to intensify the emphasis on the principle of performance . . . in the sense that, seen from the point of view of the entirety, it includes the just wage. But this is the incentive wage on a flawless basis.
>
> This wage system does not neglect meeting the needs of the unemployed. As is well known, it has been done by way of short-time work. . .

It cannot be claimed that a procedure has been presented above to serve as a "flawless basis" for wage determination. Medieval ideas of the "just price" combine contradictorily with the desire to increase productivity. The argument becomes even more confused when hourly wages are demanded for (forced) labor service camps "*because of the limitedness of resources*," although piecework wages would be possible.[47] Should one read from this that in enterprises, the resources are unlimited? No understanding of markets and their functioning can be discerned throughout the arguments, and no economic order that could provide a proper context is available.

2. At this point, we discontinue following individual papers. Instead, we present a statistical overview regarding the topics dealt with in the three leading German business administration journals (Sect. 7.2): *"Die Betriebswirtschaft," "Zeitschrift für Betriebswirtschaft"* and *"Zeitschrift für betriebswirtschaftliche Forschung."*[48] Their publication programs are pretty similar.[49] A total of 835 publications appeared from 1933 to the end of the publication period in 1943/1944 because of the pressures of the war. We have assigned papers to various categories according to their titles and, in doubt, according to their abstracts or introductory remarks. While this is not without fault, it may suffice to provide an overview (Table 9.1).

   Accounting in a broad sense (including items 1, 2, 11, 12) assumes 30.6% of all publications. After excluding industry studies, legal aspects, and others, the

[47] Ibid., 174.

[48] From 1933 until the end of publication of the journals during the Second World War, all articles are considered, excluding so-called "small contributions" in the Zeitschrift für Betriebswirtschaft, "Mitteilungen" or book reviews. Continuation contributions over several issues are treated as one contribution. Of course, the assignment of publications to categories, as was done here subjectively. The valuation of certain balance sheet items in bank balance sheets can thus alternatively be assigned to three categories, but here an assignment was only made according to the focus of the respective contribution.

[49] The corresponding values for relative entropy are 0.95, 0.87, and 0.83.

**Table 9.1** Relative share of papers in three German business administration journals, 1933–1943/1944

| | Item | %-Share (1) | %-Share (2) |
|---|---|---|---|
| 1 | Cost accounting, theory of costs | 10.1 | 15.9 |
| 2 | Financial accounting, accountancy | 10.4 | 16.5 |
| 3 | Capital budgeting | 8.3 | 13.1 |
| 4 | Organization, governance | 1.0 | 1.5 |
| 5 | Taxes | 2.9 | 4.6 |
| 6 | Economic order | 5.0 | 8.0 |
| 7 | Human resources and wages | 3.6 | 5.7 |
| 8 | Education, studies | 3.5 | 5.5 |
| 9 | Pricing | 5.9 | 9.3 |
| 10 | Marketing, marketing research | 5.0 | 8.0 |
| 11 | Valuation | 4.6 | 7.2 |
| 12 | Internal control | 5.5 | 8.7 |
| 13 | Legal issues | 2.9 | – |
| 14 | Banking | 4.0 | – |
| 15 | Commerce | 4.0 | – |
| 16 | History | 2.2 | – |
| 17 | SME's | 3.4 | – |
| 18 | Other | 15.9 | – |

Source: Own calculations. Share (1) refers to the total number of papers; share (2) excludes the last six items from the total

share rises to 48.3%. As in the pre-1933 period, it reflects the core of business research. This importance of the topics is partly due to the fact that the Corporations Law of 1937 and various regulations on the determination of profits raise related issues at the enterprise level and require solutions. For the same reasons, questions of taxation, valuation, and auditing also take up a considerable amount of space. Together, these account for about 35% of all essays. Tax policy was of interest in many respects, for example, by favoring the conversion of corporations into partnerships; in individual cases, supported by negotiations, this could lead to significant private profits, as in the case of the foundation of Friedrich Flick KG.[50]

Interestingly, pricing and marketing is another strong category. This can be explained by the above-mentioned detailed regulations in this field that need to be interpreted and commented on. Capital budgeting was not directly regulated by economic planning. However, considering the malfunctioning pricing system and the requests of an "obligated economy," difficult problems arise. Education and studies is a new category as compared with earlier statistics.

[50] Norbert Frei/Ralf Ahrens/Jörg Osterloh/Tina Schanetzky, *Flick. Die Gruppe. Die Familie. Die Macht, München (*Munich) 2009.

Astonishingly, organization and governance are covered in only relatively few papers, even if aggregated with legal issues. The fundamental reform of the German Stock Corporation Act (with the strengthening of the management board, restricting the supervisory board to supervisory functions alone, the introduction of the compulsory audit of the annual financial statements by auditors) had been discussed[51] for some time and was implemented in 1937. Allegedly it received relatively little attention in business administration,[52] which seems to be reflected by our figures. But there were also other journals to carry articles on the issues. It is noteworthy that "*Die Betriebswirtschaft*" devoted a double issue to the pertinent problems in 1937 with 11 articles. The new regulations introduced the so-called "*Führerprinzip (Leader principle)*," which penetrated almost all societal organizations to make top-down hierarchical management mandatory. This was already addressed in the "*Law on the Order of National Work"* of 1934, according to which all employees of a company compose a company community formed by the company manager as "leader" and the employees as followers. Leadership should reflect operational purposes as well as the common benefit of the people and the state. The practice, it was said, already complies with this, mainly rejecting the so-called principle of democracy with control of the board of directors by the general meeting: "*It was an absurdity from the outset to place the joint-stock company on a democratic basis, a fact which, however, finds its full justification in the liberalist and democratic principles of the last century.*"[53] The board of directors should not be controlled down to the last detail, which clearly limits the rights of shareholders.

Let us finally have a look at the discipline from the position of students. Again, the field loses its attractiveness significantly. The number of business administration students in the German Reich declines massively after 1933, partly due to persecution on racial grounds and in part presumably losing intellectual attractiveness.

[51] Fritz Lehmann, Die Rechnungslegung im Entwurf zum Aktiengesetz, *Die Betriebswirtschaft,* 1930, Vol. 23, 362–367; Curt Sandig, Um das neue Aktienrecht, *Ibid.,* 1936, Vol. 28, 145–149; Curt Fischer, Die Reform des deutschen Aktienrechts, *Zeitschrift für Betriebswirtschaft,* 1936, Vol. 13, 180–203.

[52] Johannes Bähr, "Corporate Governance" im Dritten Reich. Leitungs- und Kontrollstrukturen Deutscher Großunternehmen während der nationalsozialistischen Diktatur. In: Werner Abelshauser/Jan-Olaf Hesse/Werner Plumpe, eds, *Wirtschaftsordnung, Staat und Unternehmen. Neue Forschungen zur Wirtschaftsgeschichte des Nationalsozialismus*, Essen 2003, 61–80.

[53] Gerhard Bradke, Das Führerprinzip in der Aktiengesellschaft, *Zeitschrift für handelswissenschaftliche Forschung,* 1935, Vol. 29, 169–191, here 175. Werner Spohr, Der Führer der Aktiengesellschaft und sein Stellvertreter, *Ibid.,* 25–30; Heinrich Nicklisch, Das Führerprinzip, *Die Betriebswirtschaft,* 1935, Vol. 28, 25–27; Fritz Schmidt, Bilanzwahrheit und Führerprinzip, *Zeitschrift für Betriebswirtschaft,* 1935, Vol. 12, 385–406; Curt Sandig, Führerverantwortung für die Kapitalgesellschaften! *Die Betriebswirtschaft,* 1933, Vol. 26, 177–183; he, Führerverantwortung! *Ibid.*, 1934, Vol. 27, 189–192.

**Fig. 9.1** Chancellor Konrad Adenauer (left) and Ludwig Erhardt (right), 1954. Source: Bundesarchiv (Federal Archives), B 145 Bild-F004214–0033/ CC-BY-SA 3.0, CC BY-SA 3.0 en, https://commons.wikimedia.org/w/index.php?curid=5448681

### *9.1.3 New Ideas in Niches*

All publications, including ideas off the mainstream, not only needed to pass formal or informal censorship. Since the beginning of the Second World War, publishers needed an allocation of printing paper for their products (quite similar to the food or clothing stamps that consumers need to entitle them to buy a limited amount of consumer products). Two examples of niche publications are shown: an idea for a better economic order appears in a business journal, and the first paper on measuring firm growth in a Festschrift.

1. *Ludwig Erhard* (1897–1977), later Secretary of State of Economics and Chancellor of West Germany (Fig. 9.1), endeavors to clarify some fundamental issues of economic order. His essay is concerned with the terms "market regulation" and "market order," their contemporary use, and the development of a conception of a sustainable economic order.[54]

   However, *Erhard*'s positioning is characterized by a compromising argumentation, which is typical of the author. On the one hand, the companies—as already mentioned—were members of cartels that regulated the market through coordinated pricing policies. On the other hand, they belonged to groups (Reichsgruppen, and lower-level business organizations).[55] Their task was to regulate the market (Sect. 9.1.2). Regulation meant the promotion of commonly observed "commercial business practices," which include standardized patterns of industry calculation of prices, comparisons of economic performance among companies of an industry, and contributions to statistics of the respective industry. This was meant to assure "decent competitive practices." Quite obviously,

[54] Ludwig Erhard, Marktordnung und Betriebswirtschaft, *Der praktische Betriebswirt - Die aktive betriebswirtschaftliche Zeitschrift,* 1937, Vol. 17, 111–117.

[55] This is regulated by the "*Gesetz zur Vorbereitung des Aufbaus der deutschen Wirtschaft (Law on the Preparation of the Organizational Structure of the German Economy)"* of February 27, 1934.

this type of order ignores the market and makes collusion easy. This is not what *Erhard* has in mind, who then continues:

> It would be futile to argue with those who can see nothing else in the market than a liberal-capitalist institution, without recognizing the logical consequence that elimination of the market would necessarily lead to a communist-style distribution of goods. . . . In any case, the task is clearly to find a synthesis between a completely free economy in the liberalist sense (the term liberal does not have the synonymous meaning of political left, K. B.) and a collectively planned economy that takes account of the German economic structure and at the same time can meet the demand for the greatest economic efficiency and the highest performance.
>
> In our opinion, it means to relapse into liberalist thinking if one believes that this ambitious goal can be achieved by company-internal measures alone. . . . this means that the frictionless order of the market cannot necessarily result from the existence of economically well-managed enterprises, but that, on the contrary, the order of the market is the foundation of the prosperous development of individual business units. . . . The problem is that market organization can no longer fall within the sphere of entrepreneurial activity but belongs to the economic policy of the organizational groups (the "Reichsgruppen" mentioned above, K. B.). For the same reason, the responsibility for the realization of this order cannot be transferred back from the groups to the companies through recommendations for business management.[56]

In contrast to the mainstream view of the order of an economy, *Erhard* suggests that the highest level industry associations should be responsible for securing a market-based economy. Not addressing the Ministry of Economics in this respect could have meant that (a) this would have been an unwanted critique of current economic policy and (b) that the coordination of markets between different industries might cause severe problems. After all, the article argues for a market order as a task of economic policy. It should assume a position between a pure market economy and a planned economy. The term "social market economy," which was the political buzzword that brought *Erhard*'s party (CDU, Christian Democratic Union) to power shortly after the war in the first federal election, was not yet available.[57] But it would fit the concept outlined here. The orientation of the conception on demand is also remarkable because it is in contrast to the majority of otherwise published opinions that concentrate on production output and its allocation. The fact that the proposal had no chance of realization at the time of its publication, which perhaps *Erhard* knew as well, does not make it any less interesting. Moreover, at the same time, it allows the author's courageous conviction to emerge. The concept of the market economy of some sort was certainly meant programmatically and was also used in this way in *Erhard*'s immediate professional environment. There it was even believed:

[56] Ludwig Erhard, Marktordnung und Betriebswirtschaft, *Der praktische Betriebswirt - Die aktive betriebswirtschaftliche Zeitschrift,* 1937, Vol. 17, 111–117, here 112 et seq.

[57] This concept was developed by Alfred Müller-Armack (1901–1978) and then used by Ludwig Erhard as a guiding principle of economic policy. Alfred Müller-Armack, *Wirtschaftslenkung und Marktwirtschaft,* Hamburg 1947; Alfred Müller-Armack, Soziale Marktwirtschaft, in: *Handwörterbuch der Sozialwissenschaften,* Stuttgart/Tübingen/Göttingen 1956, Vol. 9, 390–392.

"*Inherent in all economic activity is the development towards a market economy*."[58]

2. In 1942 appeared the Festschrift in honor of *Fritz Schmidt*. It contains a proposal for an operationally formulated concept of firm growth, a categorization of growth drivers, and a discussion of the incentives for growth. It addressed managers in different economic systems.[59] It is an evidence of the almost hidden but trend-setting thinking. Since then, the topic has attracted considerable attention.

   The author develops three characteristics for operationalizing his concept of firm growth:

   - Profit should be used as an indicator of entrepreneurial performance.
   - Long-term sustainability should indicate the time frame to be used.
   - Growth should be expressed relative to a benchmark, for instance, the development of the respective industry.[60]

It is surprising and courageous to take a different view regarding the mainstream denouncing profit as a firm's performance measure. For practical reasons, profit could not easily be found in a corporation's profit and loss statement. If at all, it had to be estimated retroactively based on information on corporations' tax payments. Other legal forms of firms did not disclose their annual statements, such that it was somewhat idealistic to suggest profit as a growth measure at this time.

A long-term horizon cannot be determined to be universally valid. It may be limited from the outset, as for most private equity investments. It could also be unlimited. Theoretical reasoning to determine optimal time frames based on marginal analysis and present values was, in principle, available at the time but had not yet been formulated.[61]

Growth is the "success of specific entrepreneurial performance."[62] Profit or differential rent, as *Fritz Schmidt* calls it,[63] is considered both as an incentive to motivate specific entrepreneurial performance and as an indicator of successful pioneering achievements. The comparison with the development of an industry is

[58] Werner Halbach, Gedanken zu 'Marktwirtschaft und Wirtschaftswissenschaft'. In: Georg Bergler/ Ludwig Erhard, eds., *Marktwirtschaft und Wirtschaftswissenschaft. Eine Festgabe aus dem Kreise der Nürnberger Schule zum 60. Geburtstag von Wilhelm Vershofen*, Berlin 1939, 27–40, here 32.

[59] Erich Gutenberg, Zur Frage des Wachstums und der Entwicklung von Unternehmen. In: Friedrich Henzel, ed., *Festschrift für F. Schmidt,* Berlin/Wien (Vienna) 1942, 148–163 (=digi.econobiz.de/viewer/resolver?um=nbn:de:zbw-retronom-22779, accessed March 11, 2021).

[60] Ibid., pass.

[61] Heinz Teichmann, Der optimale Planungshorizont, *Zeitschrift für Betriebswirtschaft,* 1975, Vol. 45, 295–312.

[62] Erich Gutenberg, Zur Frage des Wachstums und der Entwicklung von Unternehmen. In: Friedrich Henzel, ed., *Festschrift für F. Schmidt,* Berlin/Wien (Vienna) 1942, 148–163, here 153.

[63] Fritz Schmidt, Differentialrente und Leistungsprämie, *Zeitschrift für Betriebswirtschaft,* 1940, Vol. 16, 89–102.

intended to put a firm's performance into perspective and make visible the specific managerial contribution.

Such a concept of business growth anticipates a variety of subsequent developments. It is presented here as evidence that, in detail, considerably modern views had their place in business administration at the time. It was possible to build on such views in the post-war period. It is evidence "*that National Socialism did not succeed in abolishing the plurality of business administration doctrines.*"[64] That sounds relatively benign. In fact, "*the period 1933–1945, with its consequences in the early postwar years, is to be regarded as damaging to business studies research alongside the human tragedies . . .*".[65]

## 9.2 Business Administration in the German Democratic Republic

After World War II, Germany was separated into four zones administered by the four powers representing the war's victors. Step by step, the three "Western" allies established a joint economic zone, while Russia administered the East of Germany and part of the city of Berlin under a different regime. This regime was transferred into the German Democratic Republic (established in 1949), known to many as Eastern Germany. In this part of the country, a socialist economy was to be established. This influenced the development of business administration severely.

During the first few years after 1949, the political developments assigned little or no room for business administration.[66] A majority of owners of firms were expropriated, and in the better of all cases found themselves employed as managers of VEB (people's owned firms), which were horizontally or vertically integrated into VVB (associations of people's owned firms).[67] Only very small firms had the chance to survive. A strict and detailed planning regime of Russian origin was put in place. It rested on principles of economic development that could not be shattered:

- Production of "means of production" (investment goods) has priority over the production of consumption goods
- Higher priority for industry than agriculture
- Higher priority for goods production over services (including housing)
- Higher priority for larger establishments than for smaller ones
- Higher priority for autarky (self-sufficiency) over international cooperation

[64] P. Gmähle, *Betriebswirtschaftslehre und Nationalsozialismus,* Diss. Univ. Erlangen-Nürnberg (Nuremberg) 1968, 183.

[65] Dieter Schneider, *Betriebswirtschaftslehre.* Vol. 4, *Geschichte und Methoden der Wirtschaftswissenschaft*, München (Munich)/Wien (Vienna) 2001, 235.

[66] Ibid., 236.

[67] Independent farmers were forced to join LPG's, Agricultural Production Cooperatives.

These principles disregarded the economic conditions in different countries, and this disregard was aggravated by inflexible production programs and an uneconomic distribution of scarce capital.[68] Consequently, economic growth was sluggish, and workers became highly disappointed.[69] Because Soviet leader *Josef Stalin*[70] (1897–1953) and his immediate follower supported this system, little could be changed. *Stalin* had terminated the "new economic plan" introduced by *Lenin* in 1927, which had offered at least some flexibility in planning.

After the death of *Stalin*[71] and under the economic pressure that had developed, the "New System of Planning and Leading the Economy (NÖSPL—Neues ökonomisches System der Planung und Leitung)" was propagated throughout the Soviet Union and its Socialist satellite states. It is telling that the preface of the official textbook on "Political Economy" of 1962 gives as one of the primary reasons for the revised edition that "*the personality cult around Stalin in the economic theory had to be eliminated together with the overcoming of the respective dogma and false theses.*"[72] This initiative—among other things—gave rise to a new formulation of the basic principles of economic development:

- In theory, the socialist economy rests on several laws: The law of the planned and proportional development of the economy, the law of continuous advancement of productivity, the law of allocation according to labor productivity, the law of socialist accumulation, the law of the assimilation of economic standards in socialist countries, etc.[73]
- These laws are "objective." This means that they exist independent of the will of people.[74] They are necessary, general, and essential. Under certain societal conditions, this makes them continual and repetitive.[75]

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[68] Klaus Brockhoff/Hansjörg Buck, Wirtschaftliche Konzentration und Betriebsgrößenoptimierung in sozialistischen Wirtschaften, *Deutschland Archiv,* 1970, Vol. 3, 225–266, here 228 et seq.

[69] On June 17, 1953, a real uprise of workers in the GDR could only be beaten down by the "brotherly help" of Soviet troops.

[70] Stalin (Steel) is the name he adopted in 1912 when he was promoted to the central committee of the Bolschewiki by Lenin. His name by birth was Josef Wissarionowitch Dschugaschwili.

[71] Vadim I. Marshev, *History of Management Thought. Genesis and Development from Ancient Origins to the Present Times,* Cham 2021, 554: "the period of extreme Stalin's suppressions was replaced by (Nikita) Krushchev's "Thaw," which revived the conditions for scientific search and discussions."

[72] Академия Наук СССР (Коллектив авторов), Полтическая Экономия (Political Economy), Москьа (Moscow) г 1962, Предисловие. (German Translation: Akademie der Wissenschaften der UdSSR, ed., Autorenkollektiv, Politische Ökonomie, 5th ed., Berlin 1964). Earlier edition in English: Political Economy, A Textbook issued by the Economics Institute of the Academy of Sciences of the USSR, 2nd ed., Moscow 1955; London 1957). For the reason given above, we follow the Russian edition, Chapter (Глава) 23 and the German edition in the following

[73] Академия Наук СССР (Коллектив авторов), Полтическая Экономия (Political Economy), Москьа (Moscow) г 1962, Предисловие. (German Translation: Akademie der Wissenschaften der UdSSR, ed., Autorenkollektiv, Politische Ökonomie, 5th ed., Berlin 1964, 533.)

[74] Ibid., 469.

[75] Autorenkollektiv, Marxistische Philosophie, Berlin 1967, 298 et seq.

- Consequently, economic development can be forecasted. The forecasts are based on a scientific theory of society and its development laws, exclusively provided by Marxism-Leninism.[76] The forecasts can integrate the consequences of material incentives (material interest).[77]
- On this basis, rest the planning processes. It is claimed that no industrialized society with division of labor can be imagined without centralization of planning.[78] From long-term plans (perspective plans), annual plans are deduced. These are complemented with norms for the use of socially necessary labor and materials inputs. Inputs should be reduced based on accounting results, revolutionary enthusiasm, and socialist competition for public honors.[79]
- Economic planning is broken down to industry associations of firms and individual firms. Business plans are part of economic plans. The state provides for financial and material resources. Profits are limited and regulated by the state. Plans are "directives"; they have to be met. Prices are planned as well.[80]
- Thus, firms have only a "relative" or "economic-operational autonomy."[81] However, they can plan a fund for incentives, which assigns a new role for profit.

Even in this theoretical world (which, in reality, proved to be utopian in almost all respects), specific impossible "directives" are given, like the objective of double extremes: "*It is an irrefutable law of economic socialist advancement that in the interest of society maximum results must be achieved by using minimum resources.*"[82] Much interest for more flexible economic planning and a more significant role of incentives to support economic growth was raised by an article in the widely read and authoritative newspaper Prawda by *J. G. Liberman*,[83] whose ideas are also known as the Charkow System. This system does not seem to have substantially affected the reality of the socialist system.

In a nutshell, a more realistic characterization of the GDR system is provided by six statements that *Rainer Schwarz* developed from the literature:

1. The entire profit of a business went to the state.
2. Retail prices remained constant and were subsidized for the population (except for innovative products).

[76] Ibid., 339.

[77] Ibid., 365.

[78] Ibid., 351.

[79] Академия Наук СССР (Коллектив авторов), Полтическая Экономия (Political Economy), Moskьa (Moscow) г 1962, Глава 23. (German Translation: Akademie der Wissenschaften der UdSSR, ed., Autorenkollektiv, Politische Ökonomie, 5th ed., Berlin 1964, 500, 505, 533, 545, 550, 584.)

[80] Ibid., 550, 560.

[81] Ibid., 589.

[82] Ibid., 584.

[83] Й. Либерман, План, Прибўл,Премия, *Правда*, сентябрь 9, 1962 (J. G. Liberman, Plan, Profit, Prämie, *Prawda,* September 9, 1969). Libermann was professor at the University of Charkow.

3. After the 1973 workers' revolt, labor standards (norms) could only be raised voluntarily by the workers and therefore remained almost constant.
4. Investments in the firms were decided in the central planning commission (of the state, K. B.) with participation of those concerned.
5. Economic successes were not measured by the economic results but by the degree of fulfillment of the plan.
6. The state had a monopoly on foreign trade[84]

We can now assess what this means for business administration. Even after the initiation of reform processes in the early 1960s, there is no need to develop strategic management. Marketing is of extremely little importance as there was no real competition in the markets, and scarce production capacities determined supply. To economize on foreign currency, the development of innovative products that could alternatively have been imported was highly subsidized (development and production of computer chips cost substantially more than their world market prices). Production planning using Operations Research techniques and shortage management were the most urgent tasks. However, only one single Western textbook served as orientation for this, namely a licensed edition available as late as 1968 of the German translation of the 1957 book "*Operations Research.*"[85] Furthermore, computing capacity was an extremely scarce resource, such that many problems of realistic size could not be solved in time.[86] Accounting and finance achieved exceptional attention in the literature because of the need to evaluate the exchange of goods along cooperations up or down the value chain, compare performance at a horizontal level of production, and calculate the different funds that remained at the disposal of firms.

While in the very early years, some scientific exchange with the West was still possible, this ceased totally in later years. This is reflected in more textbooks and journals, all based on the leading doctrine.[87]

The ups and downs for socialist business administration continued. After some encouragement in the early 1960s, "*at the end of the 1960s, components of business administration were incorporated into 'Marxist-Leninist Organization Science' to support the 'economic system of socialism' as a variant of the 'New Economic*

[84] Rainer Schwarz, Die Geschichte des Operations Research in der DDR von 1950 bis 1990. In: Wenzel Matiaske/Dieter Sadowski, *Ideengeschichte der BWL II,* Wiesbaden 2022 (in preparation).

[85] C. West Churchman/Russell L. Ackoff/E. Leonard Arnoff, *Operations Research. Eine Einführung in die Unternehmensforschung,* München (Munich)/Wien (Vienna) 1961.

[86] Rainer Schwarz, Die Geschichte des Operations Research in der DDR von 1950 bis 1990. In Wenzel Matiaske/Dieter Sadowski, *Ideengeschichte der BWL II,* Wiesbaden 2022 (in preparation).

[87] Two more textbooks from the early years may be mentioned by way of example: H. Arnold/H. Borchert/J. Schmidt, *Ökonomik der sozialistischen Industrie in der DDR,* 7th ed., Berlin 1961; S. E. Kamenizer, *Organisation und Planung des sozialistischen Industriebetriebes*, Berlin 1955. Titles of journals are: Finanzwirtschaft or Wirtschaftswissenschaft. A detailed look at the economic planning system from a Western perspective is: Hannsjörg Buck, *Technik der Wirtschaftslenkung in kommunistischen Staaten,* Vol. 2, Coburg 1969. An experience-based review: Klaus Tragsdorf, Organisationsarbeit in Industriekombinaten und -betriebe der DDR, *Journal of East European Management Studies,* 2002, Vol. 7, 57–78.

*System of Planning and Leading the National Economy.' From 1973, it was clear that even the socialist state could not do without some business research and teaching, and business administration chairs were again established.*"[88]

The binding ideological framework reduces the significance of the approaches of socialist business teachings for market-based systems. Presumably, the resulting qualification deficits of East German managing directors in managing the transformation of their firms to market economies after 1989 can be traced back to this.[89] After the unification of Germany, business management education and research had to be rebuilt in the academic system of former East Germany. For a start, professors and lecturers from West Germany helped with ideas for programs, exam regulations, and lecturing. The latter had the equivalent of 4.5 complete 4-year diploma programs, which were still the standard in the West at this time.[90] In addition, research cooperations were started, and computers, software, and financial resources were made available to East German universities.

## 9.3 Gutenberg's Approach in the Federal Republic of Germany

### *9.3.1 A Sketch of the Post-War Situation*

Of course, the collapse of the "Third Reich" in 1945 hit the universities hard. Many were not physically recognizable at all. Few resumed teaching activities[91] with remaining university instructors or those returning from the war and prisoner of

[88] Heribert Meffert, Betriebswirtschaftslehre in den Siebziger- und Achtzigerjahren. In: Eduard Gaugler/Richard Köhler, eds, *Entwicklungen der Betriebswirtschaftslehre. 100 Jahre Fachdisziplin - zugleich eine Verlagsgeschichte,* Stuttgart 2002, 135–164, here 138. The 3rd „Hochschulreform" (announced 1963 and completed 197) had restructured the organization of universities to achieve better control by the SED party (introduction of "sections" reducing the role of faculty departments and strengthening the university presidents). It also affected the contents of business studies in the GDR from 1968 onwards. Universities were primarily responsible for teaching, while research was assigned to Academies, however, in business to a smaller degree than in the natural sciences: Wolfgang Lambrecht, Neuparzellierung einer gesamten Hochschullandschaft. Die III. Hochschulreform in der DDR (1965–1971), die hochschule 2/2007, 171–189, www.hof.uni-halle.de, accessed January 27, 2022.

[89] Horst Albach, *Zerrissene Netze. Eine Netzwerkanalyse des ostdeutschen Transformationsprozesses,* Berlin 1993.

[90] Klaus Brockhoff, Betriebswirtschaftslehre für die neuen Bundesländer, *Zeitschrift für Betriebswirtschaft,* 1992, Vol. 62, 7–16.

[91] Edwin Rühli, Betriebswirtschaftslehre nach dem zweiten Weltkrieg, in: Eduard Gaugler/Richard Köhler, eds, *Entwicklungen der Betriebswirtschaftslehre. 100 Jahre Fachdisziplin - zugleich eine Verlagsgeschichte,* Stuttgart 2002, 111–133, here 113 et seq.

war camps with the approval of the respective occupying powers.[92] Before employment, all had to pass elaborate procedures to determine their involvement in Nazi organizations. This was called the "denazification proceedings," performed according to Allied guidelines. Even membership in the NSDAP declared only formally and to secure employment could lead to provisional or ultimately definitive dismissal from a professor's position, in rare cases even if expert opinions established a substantial individual distance from National Socialist ideology.[93]

The new beginning also required the re-establishment of institutions essential for developing science in its full breadth. Leading journals re-appeared from 1948 onwards. The re-establishment of the *"Association of University Professors of Business Administration"* was prepared in 1948 and carried out the following year. The number of professors of business administration developed rapidly. In later years, and from the research point of view, it was unfortunate that the number of students grew even faster. From the 1970s, this led to a situation officially described by maximum workload and even a super-workload of business administration at universities. Quantitative measures of teaching capacity almost exclusively determined student admissions, leaving research aside.[94]

The mainstream of research published during the first decennium after the founding of the Federal Republic of Germany carried on with the pre-war topics. This is indicated by the distribution of article titles by field of study as published in two leading academic business administration journals (Table 9.2). Accounting continues to be the field with the highest share of articles. This becomes even more evident if the figures for managerial accounting, financial accounting, taxation and auditing are considered jointly. A number of other branches of business administration can be noticed.

On the one hand, the re-discovered market economic system itself is discussed, and it invites substantial activities in marketing (here meant to include pricing). On the other hand, it calls for new approaches to organization and governance: away from the Nazi "leadership principle" and forward to more liberal models of an organization; away from strictly centralized organizations and forward to more decentralized organizations with their specific information and coordination problems, including transfer pricing. Organization includes discussion on co-determination of employees in their companies and at board levels.[95] Closely

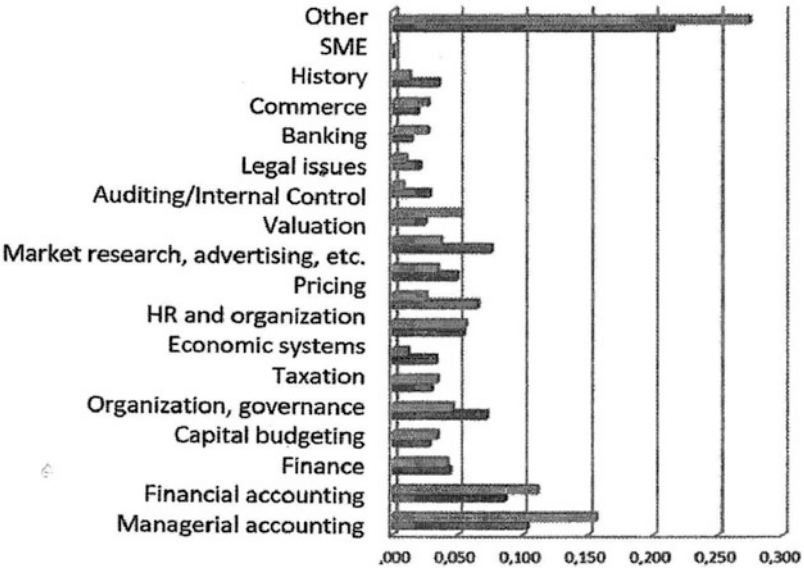
[92] Of the expelled university teachers only three returned: Eduard Gaugler/Peter Mantel, "Internationale Kontakte der deutschen Betriebswirtschaftslehre im Dritten Reich (1933–1945). In: Michael-Jörg Oesterle/Joachim Wolf, eds., *Internationalisierung und Institution,* Wiesbaden 2005, 449–480.

[93] Fred G. Becker/Heiko Nikolaus Lorson, *Gutenberg in Jena,* Baden-Baden 1996.

[94] On the situation see: Klaus Brockhoff/Jürgen Hauschildt, Plädoyer für eine bedürfnisgerechte Differenzierung der Ausbildung in der Betriebswirtschaftslehre, *Zeitschrift für Betriebswirtschaft,* supplement 3/1993, 27–40.

[95] A summary on this topic is found in: Klaus Chmielewicz, Codetermination. In: Erwin Grochla et al., edts., *Handbook of German Business Management,* Vol. 1, Stuttgart et al. 1990, Col. 412–428.

**Table 9.2** Shares of articles in two German academic business journals by field of study, 1950–1964 for Zeitschrift für Beriebswirtschaft (later: Journal of Business Economics, in grey), 1948–1962 for Zeitschrift für betriebswirtschaftliche Forschung (later: Schmalenbach Business Review, in black)




related to these societal innovations are problems of profit-sharing for employees and the determination of fair wages. The strong influence of American business administration, which some called "Americanization,"[96] was not yet present, although the developments abroad were closely observed. This is indicated by papers presented at the annual meetings of the association of business administration university professors. In 1950, when small, fully-serviced shops still dominated commerce, *Christian Behrens* reported on self-service as a means of cost-reduction and productivity enhancement; 4 years later, *Otto Schnutenhaus* spoke on the American consulting business, which was unknown at this time. It became apparent that business administration as a science had made tremendous progress abroad that had to be analyzed.

Empirical research and mathematical modeling had a slow start. As taught in university courses, mathematical and statistical methodology considered matrix algebra or the calculation of variances and covariances as advanced topics in the 1950s. The inversion of a 50-by-50 matrix was done by a dozen of well-coordinated students with electrical-mechanical calculators. The sudden appearance of

[96] Jeffrey A. Fear, *Organizing Control. August Thyssen and the Construction of General Corporate Management,* Cambridge/MA, London 2005, 677 et seq.

Operations Research, which had its roots in the Western Allies' war programs, was perceived as revolutionary in their commercial applications.[97] Computer access was rather limited. At times, it was planned that just two computing centers to serve all academic computing needs should be established in Germany. In the middle of the 1960s, an IBM 7090 was considered a real breakthrough.

The knowledge that had been accumulated abroad stemmed from applied basic research and was theory-based, it dealt with the experiences of large companies exposed to fierce competition,[98] and went far beyond an organizational theory as propagated from a practical-engineering perspective after the turn of the century.[99] In particular, these currents had converged in the enormously growing "business schools" in the USA. These insights had to be taken up if business administration was not to become irrelevant.

In West Germany, these developments could be observed easier than in the East, but it still took time to react, and, at first, only few scholars began to develop theory-based new ideas. For almost two decennia after 1951, *Erich Gutenberg* (Fig. 4.1) was the most influential and, at first, also the most controversial business economist (Sect. 9.3.2).

Further education in management as practiced in the USA was unknown in Germany. Study tours by top executives and academics to the USA, some supported by the Ford Foundation, introduced the concept to the German business community. However, much like 50 years ago and the discussion on the introduction of business education at an advanced level, "traditionally oriented" managers argued that a

[97] For example, one should think of the contributions to "linear programming" (i.e., the maximization or minimization of a linear objective function under consideration of linear constraints in the form of inequalities), which have been growing almost explosively since 1947; their presentation by the creator of the important simplex method begins with the sentence: "The final test of a theory is its capacity to solve the problems which originated it." George B. Dantzig, *Linear Programming and Extensions*, Princeton/NJ 1963. About Dantzig: gap-system.org/~history/Biographies/Dantzig_George.html (accessed October 10, 2011). Further reference should be made to game theory developed step by step since 1928, which appears in book form in 1944: John von Neumann/Oskar Morgenstern, *Theory of Games and Economic Behavior,* Princeton/NJ 1944. On its precursors: Dieter Schneider, *Betriebswirtschaftslehre. Bd.4, Geschichte und Methoden der Wirtschaftswissenschaft*, München (Munich)/ Wien (Vienna) 2001, 435 et seq.

[98] One of the most instructive books is: Alfred P. Sloan, Jr., *My Years with General Motors* (Edited by John McDonald/Catherine Stevens), New York 1963. On the history of the impact of this practitioner, among others: Jeffery D. Houston, What is good for General Motors: the contributions and influence of Alfred P. Sloan, Jr, *Journal of Management History,* 2012, Vol. 19, 328–344. The work of Alfred D. Chandler, jr, *Strategy and Structure, in the History of American Industrial Enterprise,* Cambridge, MA 1962, is impressive and influential.

[99] One might think here, for example, of: Fred(erick) W(inslow) Taylor, *Die Betriebsleitung insbesondere der Werkstätten,* authorized German edition of "shop management", edited by A. Wallichs, 2nd ed., Berlin 1912; Fred(erick) W(inslow) Taylor, *Die Grundsätze wissenschaftlicher Betriebsführung,* München (Munich) 1913. For an overview see: Alfred Kieser, Geschichte der Organisationslehre. In: Michael Lingenfelder, ed., *100 Jahre Betriebswirtschaftslehre in Deutschland 1898–1998,* München (Munich) 1999, 107–124, here 110 et seq.

university degree and learning-by-doing in practice was all that was needed to run successfully even large enterprises. Those with a "scientific orientation opposed their view."[100] Furthermore, practice questioned whether university professors would be qualified to teach what appeared to be necessary to run their business and what seemed to be remote from the standard curricula in universities. Be reminded that none of the former business schools had survived the two World Wars and the depression of the 1920s. Public universities, being inadequately funded and unable to charge fees that would generate any profits, did not engage in further education. Alternatively, a number of not-for-profit institutions were developed that offered various aspects of management training, mostly involving seasoned practitioners to a large degree.[101] This type of management education proved increasingly insufficient during the late 1950s and the 1960s: "*A targeted permeation of the contents by scientific methods was in the breadth of the approaches lacking as much as a confrontation of theory and practice with the goal to arrive at a deeper insight and a development that reaches beyond mere sharing of experiences in practice or presentation of theories in lectures.*"[102] The case method, which was a dominant means of instruction in law schools, was almost entirely missing initially. Moreover, it was soon discovered that foreign case material did not reflect the business context in Germany. In 1968, an association was founded with the aim of starting a business school in Germany. The "*Universitätsseminar der Wirtschaft (University Seminar of Business) emerged from this initiative.*" This institution conducted courses, most prominent a 10-week course modeled after a similar course offered by Harvard Business School. The institution did not grant any degrees. It was exclusively concentrated on further education and the development of cases.[103] Again, as 50 years earlier, there existed a relation with the University of Cologne, but the institution was not part of this or any other university offering business degrees. It took quite some time until a private, university-level business school was started in 1984, known today as the "*WHU—Otto Beisheim School of Management.*"[104] It offers degree programs since its beginnings, including an Executive MBA jointly

[100] These two characteristics are taken from: Horst Albach, Unternehmensführung im Wandel. In: Probleme und Aufgaben der Management-Fortbildung in Deutschland, *USW-Schriften für Führungskräfte, 1. Zehnwochen-Seminar für Führungskräfte*, Wiesbaden 1970, 17–36, here 20.

[101] S. Faßbender, „Wuppertaler Kreis". Die Weiterbildung unternehmerischer Führungskräfte in der Bundesrepublik. In: *Unternehmer und Bildung. Festschrift zum 60. Geburtstag von Ludwig Vaubel*, Köln (Cologne)/Opladen 1968, 79–96, here 85 et seq.; H.-J. Arndt/S: Faßbender/H. Hellwig, Weiterbildung unterehmerischer Führungskräfte an der Universität. *Denkschrift des Deutschen Instituts zur Förderung des industriellen Führungsnacwuchses,* Düsseldorf/Wien (Vienna) 1968.

[102] Ludwig Vaubel, Einführung. In: Probleme und Aufgaben der Management-Fortbildung in Deutschland, *USW-Schriften für Führungskräfte, 1. Zehnwochen-Seminar für Führungskräfte*, Wiesbaden 1970, 9–16, here 11 et seq.

[103] For a more elaborate review of the developments in Germany: Christian Kleinschmidt, *Der produktive Blick. Wahrnehmung amerikanischer und japanischer Management- und Produktionsmethoden durch deutsche Unternehmer, 1950–1985,* Berlin 2002, 293–307.

[104] Klaus Brockhoff, *WHU – Otto Beisheim School of Management. From Niche to International Recognition 1984–2019,* Hamburg 2020.

with the Kellogg School of Northwestern University that started in 1997, and non-degree executive courses.

### 9.3.2 New Paradigms

1. The main work of *Erich Gutenberg* is based on economic theory[105] that sets it apart from most traditional publications in Germany. *Gutenberg* was impressed by the theoretical approaches of economists (*Erich Schneider* and *Heinrich von Stackelberg*), which he read in the 1930s. He began work on "*Fundamentals of Business Administration (Grundlagen der Betriebswirtschaftslehre)"* as early as 1935; the manuscript of the first two volumes was completed in the winter of 1948–1949.[106] It is interesting to mention the time of the composition of the beginnings of the works because, as seen above, the intellectual context did not facilitate this approach. The heated discussion following the publication of the first volume (1951) in the so-called "Methodenstreit (Methodology conflict)" (in which leading business economists participated with extensive essays; with many arguments circling around the use of mathematics in business administration)[107] ultimately demonstrated the superiority of the work in terms of its method and content in explaining questions that could not be answered just as conclusively by conventional means or "normal science" (Sect. 6.2).

2a. The first volume develops a system of production factors. They comprise "elementary factors," which are human labor, operating resources, and materials. In order to achieve optimum process efficiency, these factors are combined by "business management," called the "managerial factor of production (dispositiver Faktor)," made effective through organization. The combination of production factors is called the production process that is imagined by a production function. What is new here is the development of a production process for industrial production resting on the specific conditions of using the factors of production at individual aggregates (machines integrated into the production process and representing a particular level of technology). The aggregates can be run for varying times and at varying intensities within limits. The total quantities of factor consumption can be derived from summing over all aggregates. Under certain conditions, this leads directly to the cost of production.

Using as much as possible of *Gutenberg*'s symbols, his theory of costs can be presented in a more formal way: A production process is assumed to use

[105] Erich Gutenberg, *Grundlagen der Betriebswirtschaftslehre,* Vol. 1*: Die Produktion,* Berlin/Heidelberg/New York 1951; Vol. 2: *Der Absatz,* ibid., 1955; Vol. 3*: Die Finanzen,* ibid. 1969.

[106] Horst Albach, ed., *Zur Theorie der Unternehmung. Schriften und Reden von Erich Gutenberg. Aus dem Nachlass,* Berlin et al. 1989, 55, 57.

[107] Ibid., and: Heiner Müller-Merbach, Der Methodenstreit in der BWL: Mellerowicz versus Gutenberg. In: Wolfgang Burr/Alfred Wagenhofer, ed., *Der Verband der Hochschullehrer für Betriebswirtschaft. Geschichte des VHB und Geschichten zum VHB,* Wiesbaden 2012, 179–183.

$j = 1,2,\ldots, J$ different aggregates with particular technical characteristics $\mathbf{z} = (z_1, z_2, \ldots, z_v)$. The aggregates are operated at an intensity $d_j$, which is dependent on a required final output $x$ by $d_j = \varphi_j(x)$ during a unit period of production time. For each of $i = 1,2,\ldots,I$ production factors that are used with the operation of the aggregates this leads to a factor consumption of

$$r_{i,j} = f_{i,j}\left(\mathbf{z}; \varphi_j(x)\right)$$

for each production factor $i$ at any given aggregate $j$.

Once the factor prices $p_i$ are given, the indirect variable costs of production $V_{\mathrm{ID}}$ are determined by

$$V(x)_{\mathrm{ID}} = \sum\nolimits_{i=1}^{I} p_i \sum\nolimits_{j=1}^{J} f_{i,j}(\mathbf{z}; \varphi j(x)).$$

These variable costs are called indirect because they arise only through the operation of the different aggregates.

In addition, certain inputs $\psi_k(x)$ may be integrated directly into the final output $x$ (like two prefabricated wheels into a bike), with $k = 1,2, \ldots, K$. These direct inputs have prices $p_k$. The consumption of these inputs leads to direct variable costs of production $V_{\mathrm{D}}$ that are determined by

$$V(x)_{\mathrm{D}} = \sum\nolimits_{k=1}^{K} p_k \, \psi_k(x).$$

Total variable costs $V(x)$ are then

$$V(x) = V(x)_{\mathrm{ID}} + V(x)_{\mathrm{D}}.$$

Total costs $C(x)$ are

$$C(x) = V(x) + \mathrm{F},$$

with $F$ indicating fixed costs that have to be determined separately.[108] Obviously,

[108] Horst Albach, Zur Verbindung von Produktionstheorie und Investitionstheorie, in: Helmut Koch, ed., *Zur Theorie der Unternehmung, Festschrift zum 65. Geburtstag von Erich Gutenberg,* Wiesbaden 1962,137–204; Josef Kloock, Perspektiven der Kostenrechnung aus investitionstheoretischer und anwendungsorientierter Sicht. In: Eduard Gaugler/H. G. Meissner/ Norbert Thom, eds., *Zukunftsaspekte der anwendungsorientierten Betriebswirtschaftslehre,* Stuttgart 1986, 289–302.

procurement of production factors faces perfect markets because the prices are given and not negotiable. The output $x$ can vary, thus defining a cost curve.[109]

The shape of cost functions is no longer simply "given" as such but is derived from the production function. In purely temporal adjustment to varying outputs, the cost function has a linear shape because of the fixed intensity for each aggregate. Steps in the cost function follow from quantitative adjustment, which means adding additional aggregates to the production process. Pure intensity variations at an aggregate may result in U-shaped, linear or other than proportionally rising costs with rising output levels. Because the number of aggregates, their temporal use, as well as their intensity of use can be varied, the problem of determining a cost-minimal production with changing outputs arises. This question can be answered as a minimization problem. One of the more intuitive results is that as long as an aggregate can be run at a cost-minimal intensity (within limits), it is best to reduce or extend running time at a single aggregate to react to varying output requirements.

Thus, a versatile theory of the variable costs of production is derived. Theories of production and costs are linked together; they are dual approaches.[110] Theory of production and the theory of variable costs are no longer considered as separate.

Other contributions of this first volume are presented in Sect. 5.2.

2b. To understand the differences between the theory developed by *Gutenberg* and the step-by-step advancement of cost theory developed from an agricultural context and poorly transferred to industrial application, we sketch the following developments.

In "Notes" on the "Advantageousness of Indirect Taxes," *Anne Robert Jacques Turgot* (1727–1781) reflects on the relationship between inputs and outputs in agricultural production based on observations. "*Semen thrown on naturally fertile soil without further tillage is almost lost. A single workman will raise the outcome strongly; a second workman or a third do not simply double or triple the outcome... it will raise at a proportion larger than the inputs are raised to a certain point ... Beyond this point, if inputs are further increased, the output will rise at a proportion less than the increased inputs... and finally, the outputs will not increase anymore.*"[111] The earnings power of the land is eventually exhausted. If one now assumes given factor prices of field cultivation, one can derive a curve of costs from the description depending on desired yield

[109] In addition to output or employment, Gutenberg identifies other cost drivers: Changes in technical production conditions, firm size, factor prices, and production programs.

[110] Klaus-Peter Kistner/Alfred Luhmer, Die Dualität von Produktionsplanung und Kostenverrechnung bei komplexen Produktionsstrukturen, *Zeitschrift für Betriebswirtschaft,* 1977, Vol. 47, 767–786. Klaus-Peter Kistner/Susanne Sonntag, Ansätze einer Theorie der Gutenberg-Produktionsfunktion, *Zeitschrift für Betriebswirtschaft,*1993, Vol. 63, 1297–1329.

[111] Observations sur le mémoire de M. de Saint-Peravy en faveur *de* l'impôt indirect, couronné par la société royale d'agriculture de Limoges, (probably 1767). In: Eugène Daire, ed., *Turgot*, Nouvelle Edition, 1st vol., 1844 (reprint Osnabrück 1966), 418–432, here 421.

levels. The so-called S-shaped cost function or the cost curve according to the law of decreasing marginal returns emerges.[112] This shape has accompanied managerial cost theory until recent times, which is surprising because it is derived for a specific industry (and hence specific production conditions or processes) and considers only variable production costs.

Following the latter observation, *Dionysius Lardner* (1793–1845) is credited with distinguishing between variable and fixed costs.[113] This source being almost unknown, the same merit is credited to *Eugen Schmalenbach*. He described his observations at first in a paper published by "*Deutsche Metallindustriezeitung*" of 1899. In subsequent publications, he sharpened his ideas. We refer to the 1919 version.[114] First of all, costs are characterized by the monetary values of the consumption of goods caused by their production. A closer look is then taken at costs as they develop as a function of the "degree of employment" or output. A glance at "modern manufacturing establishments" indicates that some of the costs are roughly proportional to the degree of employment, while in others, they vary more or less than proportionally to output. But there are also establishments in which an output variation leaves costs practically unchanged. For example, reference is made to the toll operation of a bridge (which, however, is not a factory operation). Such costs are said to be fixed. Then the problem is explained, which arises when fixed costs are allocated to the output quantity. If used in calculating prices, this leads to absurdity. Progressive cost increases are considered a transitional phenomenon because firms might try to avoid them by increasing capacity (temporal or quantitative adjustment would be *Gutenberg*'s terms). Compared with *Turgot*, agriculture is no longer focused, and instead of land and labor, capital and labor are chosen as the primary input factors of production.

Like many engineers, *Kurt Rummel* (1883–1953) was concerned with explaining the cost function. Of course, Rummel is concerned with those variables that influence the cost level, particularly employment. This is static a static view. He also perceives a dynamic problem in cost causation. Of closer interest to him is the observation of "cost remanence".[115]

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[112] Much later: Heinrich von Stackelberg, *Grundlagen der reinen Kostentheorie, Wien (Vienna) 1932.*

[113] Dionysius Lardner, *Railway Economy: A Treatise on the New Art of Transport...,* London 1850, here quoted from Dieter Schneider, *Allgemeine Betriebswirtschaftslehre,* 3rd ed., 2nd reprint, München (Munich)/Wien (Vienna) 1994, 126. The same author points out that the Roman Marcus Terentius Varro also recognized the fixed cost problem, ibid., 109. However, this does not cover price calculation.

[114] Eugen Schmalenbach, Selbstkostenrechnung, *Zeitschrift für handelswissenschaftliche Forschung,* 1919, Vol. 13, 259–299 and 321–356.

[115] H. D. Brasch, Zur Praxis der Unkostenschwankungen und ihrer Erfassung, *Betriebswirtschaftliche Rundschau,* 1927, Vol. 4, 41–44, 65–72, here 67 et seq; Erich Strube, Kostenremanenz und Beschäftigungsschwankungen, *Zeitschrift für handelswissenschaftliche Forschung,* 1936, Vol. 30, 505–541, esp. 511 et seq.

If, for example, one looks at three different output quantities $x_1 < x_2 < x_3$ in succession, which lead to costs $K(x_1) < K(x_2) < K(x_3)$. Then, with a decrease in output occurring from $x_3$ to $x_4 = x_2$ and $x_5 = x_1$, it is not at all observed that costs decrease to the known values $K(x_1) < K(x_2)$, but to values $K(x_5) < K(x_4)$, where $K(x_2) < K(x_4)$ and $K(x_1) < K(x_5)$. The reasons for this are, among others, delayed adjustment of labor capacities, possibly with a view to expected higher employment in the future, or the avoidance of the costs of re-opening a plant that has been closed in part to respond to lower output levels.[116] Much later, it is observed that a different type of dynamics can be caused by learning. It is observed that the unit cost of production decreases at a constant rate when equal percentages increase the cumulative output quantity. This effect was demonstrated for *Henry Ford's* car production and identified as the strategic basis of his sales successes and concurrently a strategic obstacle after successive efficiency improvements had reached a "systemic" state of the production process.[117] This could only be overcome by a radical innovation, during the installation of which the competitor General Motors made decisive market share gains. Typical learning rates with a respective doubling of production output of 70–80%, i.e., unit cost reductions of 20–30%, are mentioned in the literature.[118]

Dynamics of cost curves are not covered explicitly by *Gutenberg.* He had remarked occasionally that this was a weak spot in his theories, which did not go beyond comparative static analyses.[119]

Then, the topic of calculating prices is taken up again. By the long-known Amoroso–Robinson relation for the case without competitive reaction, a profit-maximal price is determined according to the rule

$$\text{Price} = \text{Price elasticity}^{*} \text{ marginal cost}/(1 + \text{price elasticity}).$$

We have already pointed out that in Germany in the 1930s, an increasingly controlled economy emerged in which prices did not result from market processes but, roughly speaking, were determined by the formula "cost + profit mark-up." Then, it is not marginal costs that play a decisive role in the calculation but average costs. In determining these, the fixed costs stand in the way of allocation to the individual output unit, as *Schmalenbach* already recognized. Therefore,

[116] Kurt Rummel, *Einheitliche Kostenrechnung auf der Grundlage einer vorausgesetzten Proportionalität der Kosten zu betrieblichen Größen*, 3rd ed., Düsseldorf 1949, 210 et seq. Rummel's publications on this subject appeared from 1929 onwards.

[117] William J. Abernathy/Kevin Wayne, Limits to the Learning Curve, *Harvard Business Review,* 1974, Vol. 52, 5/109–119.

[118] Bruce D. Henderson, *Die Erfahrungskurve in der Unternehmesstrategie,* Frankfurt/New York 1974. Bruce Henderson, The Experience Curve Reviewed, 2015, doi:10.1002/9781119204084.ch28.

[119] Erich Gutenberg, *Einführung in die Betriebswirtschaftslehre,* Wiesbaden 1958, 9.

*Rummel* arrives at more differentiation of the costs to get as far as possible with the allocation. He distinguishes five types of costs:

1. Costs which are independent of production but proportional to calendar time, such as interest on fixed capital, depreciation for technical obsolescence, part of salaries
2. Costs that are inherently proportional to production, such as production materials, production wages
3. Costs which, although not directly proportional to production, can be related to production through other operational variables dependent on production, e.g., set-up costs which are proportional to set-up time and reflect the influence of batch size
4. Costs that can be made proportional by planning, such as auxiliary materials and auxiliary wages
5. Costs incurred over and above this, e.g., by retaining skilled workers . . . These costs are not proportional to operational variables; consequently, they cannot be allocated to current production because any such allocation misapplies the law of proportionality[120]

This "block cost accounting" leads to linear cost curves interrupted by blocks upon reaching limits to convert costs to output-proportional costs.Despite these definitional efforts, it has to be recognized that prices are only directly related to the "total proportional costs." "*Every occasion on which a product can be sold above this proportional cost level reduces the loss inevitable because of competition in bad times. . .*"[121] This basically recognizes contribution margin accounting.[122] Full costs were related to sales for internal or external comparisons, marginal costs were applied to internal transfer pricing or to calculating short-term minimum prices. This will later become known as direct costing. *Gutenberg*'s explanation of the cost curve was not meant as a basis for price calculation. He considered prices for production factors as given, which assumes a perfect market, and developed a separate theory of price in his second volume of the "*Fundamentals*." The next step is to consider a multi-product firm that sells at given market prices. It then determines its production level from solving a linear optimization program that simultaneously provides the dual values of the input factors as their factor prices at full capacity utilization.[123] The state of cost theory thus reached seems to surpass that of *Gutenberg*'s theory because this applies to a single-product firm only. However, this production theory is expanded step-by-step to substitutional factor combinations, related to so-called elementary combinations.[124] Furthermore, multistage production is modeled.[125] In a further step,

[120] Kurt Rummel, *Einheitliche Kostenrechnung auf der Grundlage einer vorausgesetzten Proportionalität der Kosten zu betrieblichen Größen*, 3rd ed., Düsseldorf 1949, 215.

[121] Ibid., 213.

[122] Hans-Hermann Böhm/Friedrich Wille, *Deckungsbeitragsrechnung und Programmoptimierung,* München (Munich) 1965 (2nd edition of: *Direct Costing und Programmplanung,* Munich 1960).

[123] Ibid., 9–12.

[124] Edmund Heinen, *Betriebswirtschaftliche Kostenlehre,* Vol. 1*,* Wiesbaden 1965.

[125] Josef Kloock, *Betriebswirtschaftliche Input-Output-Modelle,* Wiesbaden 1969.

dynamic production models are covered.[126] Furthermore, uncertainties can be taken into account.[127] Thus, the theory developed by *Gutenberg* has proven to be versatile.These brief descriptions make it possible to follow how a particular concept is developed step by step. This is brought about firstly by the change in the object: from agricultural to industrial production, and here to progressively more complex production systems. Secondly, it is brought about by the methodology: from understanding the situation and describing it, through attempts at precise recording, to mathematical representation. This is then developed towards more and more generalization. Thirdly, empirical investigations are carried out to test the theory or provide suggestions for its further development. These steps reflect the general functions of a science (Sect. 6.5).

3a. The second volume of *Gutenberg's* "*Fundamentals*" from 1955 is structured just as systematically as the first. In its first part, the primary tasks of marketing management are presented, covering forecasting (supported by market research), planning, and organization. A special item is devoted to marketing costs. In the second part, the marketing instruments are presented, and their effects described. These are the sales method (distribution systems, sales forms, and channels), the pricing policy determined by the market structures, product design, and advertising. The final chapter deals with a formal presentation of the optimal combination of marketing instruments. The so-called 4P's (place, price, product, promotion) are already found here.

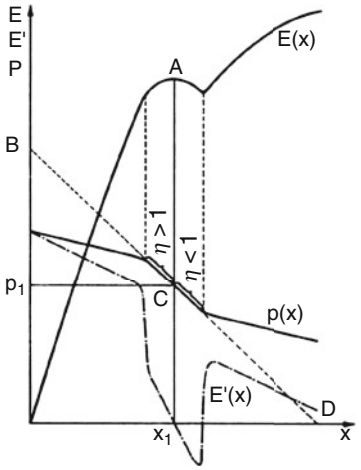
The most significant contribution to pricing is the doubly-kinked demand function for the cases of imperfect oligopoly (Fig. 9.2). The curve has a "monopolistic" or "autonomous pricing" section accompanied by two sections where immediate competitive reactions are expected.

Marginal revenue is derived for the curve and, for corresponding cost curves, iso-profit curves and profit optima are developed. These ideas proved to be highly fruitful, above all to understand better that in oligopolistic markets apparently collusive pricing behavior can be explained without assuming collusion. Following the *Cournot/Bertrand* assumptions (Sect. 4.3), the competitors facing the doubly-kinked demand curve and maximizing profits can arrive at equilibrium regions with diverging prices and profits.[128] The shape of the demand function can lead to two equilibrium price regions for each duopolist. These positions can only be abandoned by radical price changes of one competitor hoping to achieve a higher profit level, which will likely initiate a reaction that leads to a new round of

[126] Ulrich Küpper, Dynamische Produktionsfunktion der Unternehmung, *Zeitschrift für Betriebswirtschaft,* 1979, Vol. 49, 93–106.

[127] To summarise: Günter Fandel, Produktion *I, Produktions- und Kostentheorie,* 2nd ed., Berlin et al. 1989, 149ff. (1st ed., Berlin et al. 1986). On empirical research: Ibid., 188 et seq.

[128] Horst Albach/Norbert Kloten, *Gutachterliche Stellungnahme zu der Preispolitik auf dem Farbstoffmarkt in der EWG in der Zeit von 1964 bis 1967,* Tübingen 1973; Horst Albach, Market Organization and Pricing Behaviour of Oligopolistic Firms in the Ethical Drugs Industry, *Kyklos,* 1979, Vol. 32, 523–540.




| x | Quantity | E, E(x) | Revenue |
|---|---|---|---|
| P | Price | E'(x) | Marginal revenue |
| p(x) | Double-kinked demand function | A | Local revenue maximum |
| $\eta'$ | Elasticity of demand (absolute value) | BCD | hypothetical monopolistic price-demand function |

**Fig. 9.2** Gutenberg's doubly-kinked demand function

approaching an equilibrium. Equilibrium prices are not only changed for rational reasons. Furthermore, the doubly-kinked demand function could be used to establish innovative pricing levels in otherwise relatively stable markets.[129] Later, the shape of the autonomous pricing region was explained by the switching costs of buyers between suppliers.[130]

3b. As before, we shortly explore how *Gutenberg* differs from the pricing approaches developed earlier for "imperfect" or "monopolistic" competition. In 1926, it was again[131] pointed out that monopolistic competition deserved greater attention because competition in reality usually existed somewhere between

[129] Klaus Brockhoff, Die Bewährung von Gutenbergs Preis-Absatz-Funktion im Zigarettenmarkt, *Zeitschrift für Betriebswirtschaft*, 1988, Vol. 58, 828–838. Klaus Brockhoff, On a Duopoly with a Doubly Kinked Demand Function, *Zeitschrift für die gesamte Staatswissenschaft,* 1968, Vol. 124, 451–466.

[130] Horst Albach, Das Gutenberg-Oligopol. In: Helmut Koch, ed., *Zur Theorie des Absatzes,* Wiesbaden 1973, 9–34.

[131] On the history of the theory of market structures: Dieter Schneider, *Betriebswirtschaftslehre, Vol. 4: Geschichte und Methoden der Wirtschaftswissenschaften,* München (Munich)/Wien (Vienna) 2001, 726 et seq.

monopoly and perfect market.[132] This referred to a "puzzle" whose solution challenged several scientists at about the same time. In 1933 the *"Theory of Monopolistic Competition"* was published in the USA,[133] in the same year appeared in England *"Economics of Imperfect Competition"*[134] and in the following year in Germany "*Marktform und Gleichgewicht.*"[135] For Schumpeter, this is "*a striking proof of the intellectual, still more than practical, need for this type of theory and a not less striking illustration of how the logic of the scientific situation may drive different minds along similar lines of advance.*"[136] During the following decades, four questions needed to be answered satisfactorily:

- How to describe the different states between perfect competition and monopoly?
- What behaviors can the interdependent suppliers (or customers) engage in?
- What are the equilibrium prices under these assumptions?
- Is it rather the prices or the quantities that are the respective action variables of suppliers?

This is followed by further questions, such as the sources of the market power of the suppliers (or the customers) or the effect of advertising. In the discussion, among others, the idea of a once kinked demand function for oligopoly arises.[137] The supplier's behavior explains it. Interestingly, the switching costs of the customers are also mentioned.[138]

The microeconomic studies do not penetrate business administration immediately. In Germany, business economists were predominantly concerned with designing and explaining cost-plus pricing models and their effects (Sect. 9.1.2). But *Gutenberg*'s doubly-kinked demand function offers a new paradigm because it can explain observations that could not be explained satisfactorily before: Parallel pricing behavior in suspected cartels might arise without collusion.

4a. The third volume of *Gutenberg's "Fundamentals*" (1969) deals with finance. It also follows a strict outline. The capital requirements of an enterprise are derived from its production conditions. Then, the capital fund is presented, which systematically records all available financial supply alternatives to cover capital

[132] Piero Sraffa, The Laws of Returns under Competitive Conditions, *The Economic Journal,* 1926, Vol. 36, 535–550.

[133] Edward Hastings Chamberlain, *The Theory of Monopolistic Competition. A Re-orientation of the Theory of Value,* Cambridge/MA 1933.

[134] Joan Violet Robinson, *Economics of Imperfect Competition,* London 1933.

[135] Heinrich von Stackelberg, *Marktform und Gleichgewicht,* Berlin 1934.

[136] Joseph Schumpeter, *History of Economic Analysis,* New York 1954, 1150.

[137] George J. Stigler, The Kinky Oligopoly Demand Curve and Rigid Prices, *The Journal of Political Economy,* 1947, Vol. 55, 432–449.

[138] Nicholas Kaldor, Market Imperfection and Excess Capacity, *Economica,* 1935, Vol. 2, 33–50.

requirements. The final section deals with the optimal matching of capital requirements and capital supply. It must ensure financial equilibrium at any time.

4b. The third volume is less influential than the two preceding ones. This may be explained by the fact that American capital market theory had already gained substantial influence by the time of its publication. Unlike the assumption of close to perfect financial markets, *Gutenberg* is closely attached to the experience that a surcharge to a risk-free interest rate in imperfect capital markets does not alone reflect corporate risks. Instead, management is required to bring about the optimal coordination between the sphere of production goods and the financial sphere. In doing so, the rational "economic principle" must be observed.[139] Furthermore, the differences in theories just mentioned may be explained by a more imperfect European capital market and a more perfect American capital market.

5. Viewing the firm as a whole is the consistent compositional principle of *Gutenberg*'s theory. "*The centre of Gutenberg's theory is the proposition that the firm is an economically autonomous unit which, on its own responsibility, efficiently combines factor inputs in satisfying the demand for the output of this combination process in order to optimise its economic objective function.*"[140] This view has laid the foundations for a new theory of the firm.

The enterprise is embedded in an economic order that grants (limited) autonomy, and because of competition on the sides of procurement and sales, the market system requires the pursuit of the economic principle. A productivity relationship links production and sales. The coherent combination of the factors of production is carried out by the management. This management must continuously observe the principle of profitability and maintain the financial equilibrium. Successfully ensuring operational coherence by using procedures that markets alone do not provide is the essential explanation for the existence of enterprises.[141]

Methodologically, *Gutenberg* makes explicitly or implicitly recourse to procedures that had been developed to perfection in the preceding century. Deduction and isolating abstraction, for example, guide his considerations already in his habilitation thesis.[142] To illustrate the method, it is assumed that no effects emanate from the organization of the enterprise:

> The enterprise as an object of business theory cannot therefore be the empirical enterprise. For the enterprise in theory, the assumption must be made that its organization operates perfectly. By this assumption, the organization is eliminated as a source of its own problems.

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[139] Jan Piet Krahnen, Finanzierungstheorie: Ein selektiver Überblick. In: Horst Albach et al, eds., *Die Theorie der Unternehmung in Forschung und Praxis,* Berlin/Heidelberg 1999, 93–124.

[140] Horst Albach, Business Administration: History in German-Speaking Countries, in: *Handbook of German Business Management, Vol. I,* Stuttgart et al. 1990, Col. 246–270, here 252.

[141] Reinhard H. Schmidt, Erich Gutenberg's Theory of the Firm. In: Horst Albach et al., eds., *Theory of the Firm. Erich Gutenberg's Foundations and Further Developments*, Berlin/Heidelberg/New York 2002, 3–39.

[142] Erich Gutenberg, *Die Unternehmung als Gegenstand betriebswirtschaftlicher Theorie,* Berlin/Wien (Vienna) 1929.

> In so far, it is removed from its scientifically and practically important position such that no further difficulties can arise for the theoretical thinking. The assumption of such an attuned organization, guaranteeing the smooth execution of the basic business processes, does not mean its negation, but merely a neutralization of the problems of organization.[143]

*Gutenberg* explicitly points out that he was influenced in his methodological approaches by *Johann H. von Thünen*, *M. E. Léon Walras* (1834–1910), imparted to him through *Schumpeter*'s writings, and by *Eugen Schmalenbach*.

When *Gutenberg* worked on the first volume of his *"Fundamentals"* he had to find a solution for corporate planning, long before later Operations Research-models or simulation models of the "Industrial Dynamics"-type became known. He developed the idea of a hierarchical planning system determined by a "*law of equalization of planning (Ausgleichsgesetz der Planung)*." This law postulates "*the dominance of the minimum sector, which is the weakest* (the most limiting, K. B.) *subsector of the total system of business activity. This subsector may change. Such change requires an alteration of planning.*"[144] In the short run, the new most limiting subsector determines the business plans. In the long run, it signals expansion necessities to arrive at a more harmonized business system. The "law" is explicitly considered as a practical approach to corporate planning and not as a theory. Later knowledge of dual prices of scarce resources as they result from optimization models provide a much better and theoretically convincing solution to the same problem. However, as attempts at optimizing or simulating corporate planning in larger companies require enormous capacities of planning, programming, data collection and update, the "law" continues to offer a practical, although not necessarily optimal advice.

*Gutenberg*'s treatment of labor as a factor of production, i.e., the employees in the company, has been a subject of much discussion. He assumes accordance of personal goals with those of the company. This "solidarity axiom" is an assumption that excludes the problems resulting from conflicts of interest in the company by again using the methodological principle of isolated abstraction.[145] Once the solidarity assumption was abandoned, several alternative approaches developed: The view of the company as a "social system" was an alternative to the approach presented by him.[146] The social system is not restricted to harmonious relations among its members. In the *decision-oriented approach,* the individual decisions and their constraints are taken into account within the framework of a productivity-

[143] Ibid., 26.

[144] Erich Gutenberg, *Grundlagen der Betriebswirtschaftslehre,* Vol. 1, 7th ed., Berlin et al. 1962, 124 et seq.

[145] Dieter Sadowski, "Personalökonomie und Personalwirtschaftslehre" - eine Spurensuche. In Wenzel Matiaske/Wolfgang Weber, *Ideengeschichte der BWL. ABWL; Organisation, Personal, Accounting and Taxation,* Wiesbaden 2018, 423–438, here 431. Ralf Reichwald, *Die menschliche Arbeit in der betriebswirtschaftlichen Produktionstheorie. Eine methodologische Analyse,* Diss., Univ. of Munich 1973.

[146] Horst Albach, ed., *Zur Theorie der Unternehmung. Schriften und Reden von Erich Gutenberg. Aus dem Nachlass,* Berlin et al. 1989, 29–43, 48 et seq.

oriented firm.[147] The bases for goal-directed actions are studies on decision behavior and decision theory, both for decisions under certainty or uncertainty. This approach is thus economically and behaviorally grounded. In the *systems theory approach,* the focus is on the performance of management in setting objectives and its problem-solving capacity while taking into account the activities of the other employees.[148] All actors influence each other reciprocally. These interdependencies are mapped in a system of control loops, which can strengthen or weaken impulses acting on them. The goal is a cybernetic (self-controlling) system that keeps the company's development within certain limits. One of the many difficulties of modeling such a social system is its openness. In the *coalition theory approach,* the individual objectives of the firm's stakeholders must be coordinated, for which management uses power and incentives.[149] To be successful, their recipients must perceive incentives as matching their respective commitment to the firm. These approaches are not primarily productivity-oriented but behavior-oriented. They rely heavily on ideas that are of great importance in American behavior-oriented management research (Sect. 10.2.2)[150]. These approaches take individual behavior as their starting point from which the understanding of behavior in organizations is developed (methodological individualism). These approaches digress from the productivity-theoretical approach. In essence, a completely different, namely, not merely economic approach, is provided. According to Meffert, the split into different methodological directions (theoretical-mathematical versus empirical-behavioral) is accompanied by the dissolution of a general management approach.[151] As a result, *Gutenberg*'s holistic view has become a rare exception while the discipline expands by developing new paradigms.

[147] Edmund Heinen, *Grundfragen der entscheidungsorientierten Betriebswirtschaftslehre,* München (Munich) 1976.

[148] Hans Ulrich, *Die Unternehmung als produktives soziales System*, Bern/Stuttgart 1968.

[149] Werner Kirsch, *Einführung in die Theorie der Entscheidungsprozesse*, Vol. 1–3, 2nd ed., Wiesbaden 1977.

[150] Herbert A. Simon, *Administrative Behavior. A Study of Decision Making Process in Administrative Organization*. New York 1945; James G. March/Herbert A. Simon, *Organizations,* New York 1958; Richard M. Cyert/James G. March, *A behavioral theory of the firm,* Englewood Cliffs/NJ 1963. For criticism, including the decision-oriented direction, among others: Dieter Schneider, *Betriebswirtschaftslehre. Vol. 4, Geschichte und Methoden der Wirtschaftswissenschaft*, München (Munich)/Wien (Vienna) 2001, 257 et seq.

[151] Heribert Meffert, Betriebswirtschaftslehre in den Siebziger- und Achtzigerjahren. In: Eduard Gaugler/Richard Köhler, eds., Entwicklungen *der Betriebswirtschaftslehre*, Stuttgart 2002, 135–164, here 138.

# Chapter 10
# Sketches on Developing Specializations


**Abstract** General business administration has extended into various specializations. Specializations by industry, by managerial functions, or by cross-functional approaches are important modes of extensions. We present four functional modes of specialization (Accounting, Human Resources and Organization, Marketing, Finance) and two cross-functional specializations, namely innovation management and firm growth as a phase-specific specialization. Observations on these specializations are generalized and a suggestion for an organization of business studies around a common core is presented.

## 10.1 Modes of Specialization

When a science expands, it tends to create sub-fields or specializations. Much earlier than suggested at the end of the last chapter, such specializations existed, and one may even say that the business schools re-initiated the idea of a program in "general business management." There it was taught for about 100 years. General business management is not a bad idea. Particular economic principles and rules pertain to any specialization in the fields of business economics. Examples are the notions of efficiency, effectiveness, and productivity. The concept of innovations, its drivers, risks, and opportunities should also apply to any specialization. The problem of putting scarce resources to their best use is of general importance. It can be considered as a purely economic issue or one involving fundamental ethical issues, which was observed very early.[1] In particular, *Wilhelm Hasenack* (1901–1984) recommends steps to overcome a threefold moral crisis of the early 1930s (moral in leadership, annual reporting, serving creditors), which should be supported by adequate legislative action and given more power to markets, including a reduction of subsidies.

[1] Wilhelm Hasenack, *Unternehmertum und Wirtschaftslähmung,* Berlin 1932, 15 et seq.; Arwed Emminghaus, *Allgemeine Gewerkslehre,* Berlin 1868; Rudolf Dietrich, *Betriebswissenschaft,* Berlin/Leipzig 1912, 683–813 (which is about one third of the total text).



K. Brockhoff, *Management Ideas*, Contributions to Management Science,
https://doi.org/10.1007/978-3-031-09962-5_10

However, it should be remembered that origins of management thought were first identified concerning agricultural estates (Chap. 2), commercial management in the more narrow sense was covered later (Sect. 3.3), and banking or insurance was treated as part of this. Thus, trying to generalize business knowledge was a later idea that governed programs in the new business schools, although not in a pure form. Specializations began to develop with the growing complexity of managing and the response to this by an enormous growth of business research. Even in a specialization like accounting, it appeared that the increasing knowledge could not be contained in only one field.[2]

Today, we identify three significant modes of specialization:

- Specialization by industry, extending the traditional lines of thinking.[3] Specialization by industry is documented in books on industrial management,[4] banking,[5] or commerce.[6] Of 46 German business professors reporting on specializations in 1943, 28% had chosen "industry," 21% "commerce," 19% each "banking" and "auditing," and 10% "logistics."[7]
- Specialization by business function, as in marketing, finance, etc., with recent tendencies of spreading the boundaries of such specialization, such as in supply-chain management.
- Specialization by phase of business development, such as in start-up management, firm growth, management of business failure, etc. *Friedrich Leitner* (1874–1945) was among the first scholars to define basic business terms (assets, capital, costs, sales, earnings, etc.), deal with functional specializations (financing, accounting, risk management, corporate policy) as well as with phases of business development (founding, reorganization, dissolution of companies).[8]

Regional, national, or supranational environments and their regulations superimpose these modes. This is easily recognized in fields like financial accounting or corporate governance, particularly in those nations were codified law dominates. National environments, in particular, may include specific economic orders that

[2] Richard Mattessich, German Language Area. First half of the twentieth century. In: Richard Mattessich, ed., Two hundred years of Accounting Research, New York 2008, 42.

[3] Industry specialization was the dominating mode in socialist countries, including the GDR, until the 1980s. University departments could be specialized to serve one industry, like shipbuilding.

[4] For example: Albert Calmes, *Der Fabrikbetrieb,* 7th edition, Leipzig 1922; Enno Heidebroek, *Industrie-Betriebslehre,* Berlin 1923; Alfred Isaac, *Der Industriebetrieb,* Leipzig 1930.

[5] For example: Ernst Walb, Die Weiterbildung der Betriebslehre der Banken, *Zeitschrift für handels-wissenschaftliche Forschung,* 1914/1915, Vol. 9, 179–186; Heinrich Sommerfeld, *Die Technik des börsenmäßigen Termingeschäfts,* Berlin 1923; Wilhelm Hasenack, *Betriebskalkulation im Bankgewerbe,* Berlin 1925.

[6] For example: Josef Hellauer, *System der Welthandelslehre,* Berlin 1910.

[7] Verband der Betriebswirtschaftlichen Hochschullehrer, ed., *Verzeichnis dr betriebswirtschaftlichen Hochschullehrer,* 1943, 7.

[8] Friedrich Leitner, *Die Privatwirtschaftslehre der Unternehmung,* Berlin/Leipzig 1919 (=digi.econobiz.de/viewer/image/893657875/6/, accessed February 11, 2021).

| | | | | | |
|---|---|---|---|---|---|
| Industries | (unspecific) | Agriculture | Commerce * | ... | Services |
| Functions | (unspecific) | Procurement * | Finance | ... | Marketing |
| Phases | (unspecifc) | Start up * | Growth | ... | Insolvency |
| Environment | (unspecific) | Regional | National | ... | Supranational * |

**Fig. 10.1** Modes of specializations

influence business activities and research. As mentioned above (Sect. 5.2.2) national economic orders define the degree of autonomy in business decisions. More recently, further specializations were developed, such as ownership. Family ownership as compared with ownership by a private equity firm may be recognized by differences in the share of equity capital or the time orientation of top management.[9]

Figure 10.1 illustrates how different modes of specialization can be combined to even more specialized fields. For example, following line-by-line the asterisks placed in different boxes, a type of business administration dealing with procurement in commerce in the start-up phase of a supranationally oriented business would emerge. Combining all fields labeled "unspecific," the most general type of business administration would be addressed. It can be considered as the core of the discipline. It contains and develops knowledge that should be known to any person who professionally deals with business problems.

The diagram shown is not meant to be exhaustive. It illustrates how much the number of specializations increases, once specific characterizations of different modes are combined. Teaching programs followed research in their specializations. It would not be surprising to find a program that offers start-up marketing in the tourist industry or even more narrow fields.[10]

Specializations may find their limits by markets. Within an organization business processes pass by interfaces through a number of functional specializations. The management of interfaces can address unspecific characteristics or specific characteristics, as in the r&d/marketing interface.[11] In general terms, the advantages of division of labor in business processes can be harvested only at the cost of re-combining the partial results into the desired product or service.

[9] This type of diagram was called a "morphological box" by its inventor, the Swiss astronomer Fritz Zwicky, *Discovery, Invention, Research Through the Morphological Approach*, Toronto 1969.

[10] The "Hochschulkompass.de" identifies 21.026 programs offered by universities and universities of applied science in Germany (accessed January 17, 2022). Of these, 3.385 have "management" in their title, 1.024 name "marketing", 837 name "business", and so on. This indicates the level of specialization in teaching.

[11] William E. Souder/Alok K. Chakrabarti, Managing the Coordination of Marketing and R&D in the Innovation Process. In: Burton V. Dean/Joel L. Goldhar, *Management of Research and Innovation,* Amsterdam 1980, 135–150. Klaus Brockhoff, *Schnittstellen-Management,* Stuttgart 1989.

Specializations by business functions cast into organizational units can cause more severe "interface" problems in practice. They lead to field-specific objectives, key performance indicators, language, perceptions of time frames, etc. In a broader sense, they reflect different cultures. Firms attempt to deal with these developments by installing mixed teams or using integrating methods like balanced scorecards.[12] Another approach concentrates on processes instead of structures. Important examples are supply-chain management or innovation management. Both may even cross the legal borders of a particular firm.

Specialization is also an issue in business education. It is observed that in the past, this was more of a problem to American business education than to its German counterpart.[13] With the introduction of the Bachelor/Master-structures in Germany from around 2003 onwards and the elimination of the earlier, four-year diploma programs, this difference seems to have vanished. Very early, it was warned that in graduate education, too much specialization could cause problems "*as severe as those described by industrial sociologists and psychologists*," which calls for corrective measures.[14] Business schools have identified the problems since the end of the 1950s.[15] They implant case studies demanding team solutions or cap-stone courses for general orientation, which could include history of ideas in business economics. These courses, in particular, could serve multiple functions. They could offer

- Integration of separate parts of knowledge on a sound theoretical base
- Overview over the full spectrum of the discipline
- Cross-sectional views to discover joint problems and their solutions
- Bridging gaps of the firm and its economic context[16]

Indicators of the demand for these functions are journals, like "*Journal of Economic Abstracts" (1963, renamed 1969 "Journal of Economic Literature") or "International Journal of Management Reviews*" since 1999. Specialization leads to

[12] *Robert S. Kaplan/D. P. Norton, The Balanced Scorecard – Measures That Drive Performance, Harvard Business Review, 1992, (January–February) 71–79.*

[13] Christian Homburg, Die Rolle der deutschen Betriebswirtschaftslehre im internationalen Vergleich. In: In: Michael Lingenfelder, ed., *100 Jahre Betriebswirtschaftslehre in Deutschland, 1898–1998*, 195–212.

[14] Report of the Select Committee on Education [to the Academic Senate of the University of California, Berkeley], *Education at Berkeley*, [Berkeley/CA]1966.

[15] Frank Cook Pierson, *Education of American Business Men: A Study of University-College Programs in Business Administration,* New York et al. 1959; Robert A. Gordon/James E. Howell, *Higher Education for Business,* New York 1959; Robert Giesson/Steven Schlossman, *The Beginnings of Graduate Management Education in the United States,* Graduate Management Admission Council 1994; Gary John Previts/Barbara Dubis Merino, *A History of Accounting in America*, New York et al. 1979, 155.

[16] Wolfgang Weber, Allgemeine versus Spezielle Betriebswirtschaftslehre. In: Wenzel Matiaske/Wolfgang Weber, *Ideengeschichte der BWL. ABWL, Organisation, Personal, Rechnungswesen und Steuern,* Wiesbaden 2018, 21–40, here 29.

specialized professional associations or the establishment of specialized groups within more encompassing associations.

Keeping the developments towards increasing specialization in mind, we present in the following examples for functional specialization, cross-functional, and phase-related specialization.

## 10.2 Examples of Functional Specializations

### *10.2.1 Accounting*

(1) The purpose of accounting was explained in a philosophical sense by *Adam Smith:* "*A moral being is an accountable being. An accountable being . . . is a being that must give an account of its actions to some other, and that consequently must regulate them to the good-liking of this other.*"[17] An account of decisions taken must be given not only to others but also to oneself, particularly with respect to economic decisions. This is possible only if accounting techniques become known and the accounts are made transparent to the interested "other" people. In Sect. 2.3, we have reported that the advanced technique of double-entry bookkeeping became known by the publication of *Luca Pacioli* in 1494. The publication ended the secrecy of accounting that had prevailed for a long time. However, the history of accounting dates back much longer (Chaps. 1, 2, and 3). Sometimes the nudges to further develop accounting and transparency developed out of malfunctions of markets due to an asymmetric distribution of information or even major scandals. The bust of the European stock market bubble in 1873 was one such event, and the split of ownership in corporations from their management in the second half of the nineteenth century was yet another.[18] Both events triggered new accounting and auditing techniques. Accounting was at the core of teaching and the beginnings of research of the business schools that started at the end of the nineteenth century. It remained in this core position for decennia to follow.

The enormous flow of accounting literature must be reduced here to a few highlights and regions. This is alleviated by an observation made by *Richard Mattessich* in a volume that presents an international overview of accounting research: "*During the first half of the twentieth century this leadership (of accounting thought) was claimed by Germany . . ., just as well as it was transferred in the second half to the English language area."* For the first half of

[17] Adam Smith, *The Theory of Moral Sentiments,* London 1759, 257.

[18] Klaus Brockhoff, Struggling to fight managerial opportunism in 19th Century Europe, *Management and Organization History,* 2016, Vol. 11, 399–419.

the century, "*it is difficult to separate the concern for accounting from that for business studies in general.*"[19]

(2) Accounting is split into three major sub-specializations, namely cost accounting, financial accounting, and controllership (management control or controlling).[20] Auditing as practiced by certified public accountants rests on these sub-specializations but has developed its own body of methods and professional standards, not the least by the professional organizations of CPA's that were already organized in the second half of the nineteenth century and later. Particularly in Great Britain, this responded to the rising complexity of their tasks in growing companies with limited liability and stock corporations. Controllership claims for itself a history reaching back to the construction of the Egyptian pyramids around 2.500 BC.[21] Claiming again growth and rising complexity of business operations, it became advantageous to introduce controllership as a business function.[22] After the "Controllers Institute of America" had renamed itself to "Financial Executives Institute" in 1962, the Institute signaled that controllership includes the tasks of treasurers. It published a demanding and extensive catalogue of controlling tasks: Planning and Control, Reporting and Interpreting, Evaluating and Consulting, Tax Administration, Government Reporting, Protection of Assets, Economic Appraisal.[23] This list indicates a claim to deal with the complete field of managerial accounting and financial management. "*It is the investigative, analytical, suggestive and advisory function, studying the business at all points at all time. . .*"[24] In a more abstract formulation, controlling is assigned the task of "securing rationality of management."[25] In a world with uncertainties, this is extremely demanding, if possible at all. Because controlling draws heavily on accounting, we do not pursue this field further.

(3) A first significant achievement of cost accounting research was the development of categories of monetary activities for the purpose of specific control and planning activities. Thus, managing cash flows was achieved by collecting data on

[19] Richard Mattessich, German language area. First half of the century. In: Richard Mattessich (and collaborators), *Two Hundred Years of Accounting Research. An international survey of personalities, ideas, and publications . . .,* London/New York 2008, 41–65, here 41.

[20] Utz Schäffer/Christoph Binder/Markus Gmür, Struktur und Entwicklung der Controllingforschung. Eine Zitations- und Kozitationsanalyse von Controllingbeiträgen in deutschsprachigen wissenschaftlichen Zeitschriften von 1970 bis 2003, *Zeitschrift für Betriebswirtschaft,* 2006, Vol. 76, 395–440.

[21] Volker Lignau, Geschichte des Controllings. In: Michael Lingenfelder, 100 Jahre Betriebswirtschaftslehre in Deutschland, 1898–1998, München (Munich) 1999, 73–91.

[22] J. H. Jackson, *The Controller. His Functions and Organization,* 2nd ed., Cambridge/MA 1949, 9; H.-G. Kröckel, *Zur Funktion des Controllers im amerikanischen Industriebetrieb,* PhDDiss, Berlin 1965; D. Vahs, *Controlling-Konzeptionen in deutschen Industrieunternehmungen: eine betriebswirtschaftlich-historische Untersuchung,* Frankfurt et al. 1990, 20 et seq..

[23] Financial Executives Institute, Controllership and Treasurership Functions Defined, *The Controller,* 1962, Vol. 30, 6/289.

[24] L. W. Hill, The Growth of the Corporate Finance Function, *Financial Executive,* 1976, Vol.44, 7/38–43, quoting Knöppel, 1935.

[25] Jürgen Weber, *Einführung in das Controlling,* 8th ed., Stuttgart 1999, 39.

receipts and expenditures. Financial operations were based on revenues and expenses.[26] Inter-firm and inter-period comparisons of firms (and later also business units) used performance and costs. The nominal values of the monetary items covered by the terms can differ: the expenditure for a new building in one year differs from its expense as expressed by the depreciation for wear and tear. If, as it was not unusual in the late nineteenth century, the expense of the mansion of the entrepreneur was shouldered by his firm, this should not have been considered cost because it was not immediately used in the production process. Compounds such as the expression "cost expenditure,"[27] which is still encountered daily outside the professional literature, were refuted.

Different criteria could partition the total costs of a period to enable further controls. The primary criteria are cost categories (wages, materials used, etc.), centers (organizational units that have responsible managers), or cost units (individual product categories).

Comparisons of costs and performance measures can become more reliable and valid once the individual accounts to collect the data are standardized. Furthermore, better securing the firm's property should also be achieved by standardized data, as *Schmalenbach* claims.[28] These standards are the objectives of theories of accounts that lead to charts and master charts of accounts.[29]

Cost accounting serves as a basis for the evaluation of short-term business success. Elaborate procedures have been developed for this.[30]

Internal accounting is being significantly developed through marginal costing, direct costing, contribution margin accounting, and activity-based costing as bases for management decision-making. Marginal costing, which was suggested by *Schmalenbach*,[31] was expanded, especially by *Plaut*, and introduced into companies

[26] Eugen Schmalenbach, *Kostenrechnung und Preispolitik,* 8th ed., Köln (Cologne)/Opladen 1963, 6 et seq. There, the historical development steps of the terms are also briefly referred to. Except for the first section, there are no citations or references in this book. Therefore, reference must be made here to Edwin Geldmacher, Grundbegriffe und systematischer Grundriß des betrieblichen Rechnungswesens, *Zeitschrift für handelswissenschaftliche Forschung,*1929, Vol. 33, 1–27. F. Leitner, *Die Selbstkostenrechnung industrieller Betriebe,* Frankfurt 1905 – and further editions. For the English language area: E. Garske/J. M. Fells, *Factory accounts. Their principle and practice,* London 1882.

[27] Georg Obst, Kaufmännische Betriebslehre. In: Georg Obst., ed., *Das Buch des Kaufmanns,* vol. II, Stuttgart 1928, here 120 et seq.; Eugen Schmalenbach, Unkostenbücher, *Zeitschrift für handelswissenschaftliche Forschung,* 1913, Vol. 6, 156.

[28] Eugen Schmalenbach, *Der Kontenrahmen,* 4th ed., Berlin 1935, 6.

[29] Richard Mattessich, German language area. First half of the century. In: Richard Mattessich (and collaborators), *Two Hundred Years of Accounting Research. An international survey of personalities, ideas, and publications . . .,* London/New York 2008, 41–65, here 42.

[30] Theodor Beste, *Die kurzfristige Erfolgsrechnung,* Leipzig 1930.

[31] Eugen Schmalenbach, *Buchführung und Kalkulation im Fabrikgeschäft,* Leipzig 1928. The book goes back to articles published in the "Deutsche Metall-Industrie-Zeitung" from 1899.

through consulting.[32] Like the direct costing of *Paul Riebel* (1918–2001), it has been widely incorporated into SAP systems.[33] However, in the worldwide diffusion of software offerings, its origins in research remain hidden.

(4) Financial accounting deals with annual or sub-annual accounts summarized in balance sheets and profit-and-loss accounts. A major issue is the valuation of the assets and liabilities in the balance sheet with respect to different purposes. Several theoretical approaches to the valuation problem and the interpretation of the items shown in the balance sheet have been developed. Four major theories are:

- Static balance theory: The annual balance shows stocks of assets and liabilities to determine the net property of a company, which is interpreted as its annual profit. All items are evaluated at acquisition costs, or the lower value of acquisition costs or market price. The balance is an artificial "slice" out of the perpetual company life over its entire existence. Only at its termination can the success of the company be exactly determined.[34] One of the representatives of an advanced version of this theory is *Walter Le Coutre* (1885–1965).[35]
- Organic balance theory: Observing the inflationary fluctuation of prices, the company's net property should be evaluated relative to the development of the economy. This can be achieved by weighting all items by a price index to correct their acquisition cost (which immediately raises the question of choosing the proper index) or by weighting each item at the prices for its recovery at the record day.[36] This seems to maintain the production potential of the firm better. As in today's International Financial Reporting Standards, a specific account would have to collect the values arising from the price differences. The same applies to eliminating the effects of fluctuations in exchange rates compared with local currency. *Fritz Schmidt,* who favored this balance theory, had in mind also to mitigate business cycles by the valuation approach proposed.[37]
- Dynamic balance theory: The main purpose is an exact determination of profits to control the firm's economic performance. Therefore, items are not looked at as

[32] Hans-Georg Plaut, Grenzplankosten- und Deckungsbeitragsrechnung als moderne Kostenrechnungssysteme. In: W. Männel, ed., *Handbuch Kostenrechnung,* Wiesbaden 1992, 203–225.

[33] H. Müller, Prozesskonforme Grenzplankostenrechnung als Plattform neuerer Anwendungsentwicklungen, *Kostenrechnungspraxis,* 1994, 112–119. W. Sinzig, Relative Einzelkosten- und Deckungsbeitragsrechnung in SAP-Systemen, *Kostenrechnungspraxis,* 1994, 52–54.

[34] Wilhelm Rieger, *Privatwirtschaftslehre,* Nürnberg 1928, 208 et seq.

[35] Walter Le Coutre, *Grundzüge der Bilanzkunde – Eine totale Bilanzlehre,* Leipzig 1924.

[36] Fritz Schmidt, *Die organische Bilanz im Rahmen der Wirtschaft,* Leipzig 1921; Fritz Schmidt, The evaluation of fixed assets in financial statements, *The Accountant,* 1929, Vol. 16, 616–629; Fritz Schmidt, The importance of replacement value, *The Accounting Review,* 1930, Vol. 5, Sept. 235–242. In the USA valuation at replacement cost was not shared by all. John Canning, *The Economics of Accounting, A critical analysis of accounting theory,* New York 1929, rejected it.

[37] Fritz Schmidt, Die Industriekonjunktur – ein Rechenfehler! *Zeitschrift für Betriebswirtschaft,* Special Issue 2, 1927, 61–72.

stocks. Rather, they are considered as future resource potentials. For example, the value of fixed assets at nominal acquisition costs (payments, expenditures) reduced by the accumulated depreciation is interpreted as the resource potential for future use (expense).[38] The explicit temporal outreach in the interpretation of all items' values is why *Schmalenbach* has called it a "dynamic" theory. This theory was most widely discussed and developed further.[39]

A different type of "dynamics" was to compare item-by-item the value differences between two successive annual statements. Thereby, one arrives at flow statements.[40] Furthermore, the concept of total cash flow was developed that is broken down into operational, financial, and investment cash flows.[41] These flows offer better insight into the firm's performance at the payment's level.

- The forward-looking balance theory: The balance sheet is at the center of the theory, while the profit and loss statement is considered a sub-account.[42] Valuations should be done at discounted future sales values ("heutiger Wert"). This foreshadows the present-value approach to financial accounting statements.[43]

Annual reporting can have different external addressees. These can be stock owners, creditors, governmental authorities, tax authorities. Annual accounts for tax purposes reflect particular rules of taxation that let the resulting profit digress from the profit determined by commercial law. If so, it should be determined which of the two is relevant ("maßgeblich") for the remaining other. Furthermore, regulated prices can have effects that need to be recognized compared to market prices. Valuation is also dependent on whether the assumption of a going concern can be made or not, for instance, in the case of insolvency. Thus, different types of balance sheets can be established for the same period.[44]

Depreciation for wear and tear of fixed assets or depletion for other reasons constitute specific valuation problems. Different procedures are discussed to reflect the underlying causes for these write-downs as closely as possible.[45] Another issue is the choice of methods to generate faster depreciation. This enhances growth by

[38] Eugen Schmalenbach, Grundlagen dynamischer Bilanzlehre, *Zeitschrift für handelswissenschaftliche Forschung,* 1919, Vol. 13. Eugen Schmalenbach, *Dynamische Bilanz*, 10th ed., Bremen-Horn 1947.

[39] Ernst Walb, *Finanzwirtschaftliche Bilanz,* 1943; 3rd ed., Wiesbaden 1966.

[40] Walter Bauer, Die Bewegungsbilanz und ihre Anwendbarkeit, insbesondere als Konzernbilanz, *Zeitschrift für handelswissenschaftliche Forschung,*1926, Vol. 20, 485–544.

[41] Walter Busse von Colbe, Aufbau und Informationsgehalt von Kapitelflussrechnungen, *Zeitschrift für Betriebswirtschaft,* 1966, Vol. 36, supplement 1, 82–114.

[42] William Paton, *Accounting Theory,* New York 1922, 20.

[43] J. B. Canning, *Economics of Accountancy. A critical analysis of accounting theory,* New York 1929. Wilhelm Rieger, Die organische Tageswertbilanz, *Archiv für Sozialwissenschaft und Sozialpolitik,* 1930, Vol. 64, 136–154.

[44] Fritz Schmidt, Der *handelsrechtliche*, steuerrechtliche und preisrechtliche Gewinn, *Zeitschrift für Betriebswirtschaft,* 1942, (reprint from issue 3) 1–14.

[45] Fritz Schmidt, The basis of depreciation charges, *Harvard Business Review,* 1930, Vol. 8, April 257–264; B. A. Grimes, The Income Tax, Depletion and Depreciation, *The Accounting Review*,

reducing current tax loads for economic policy reasons. Apart from pragmatic determinations of depreciation, *Harold Hotelling* (1895–1973) developed a theory that determines depreciation from the difference between the present-day value of an item and its price on perfect markets.[46]

A particular problem arose in Germany in 1948. The old "Reichsmark" currency was abandoned, and the new "Deutsche Mark" was introduced. By de-valuating, this served to eliminate the largely hidden inflationary effects of financing the war. At the same time, many formerly regulated prices could arise freely. New accounts had to be opened in the new currency to respond to these economic measures. Because of price changes, stocks of raw materials, semi-finished or finished products had to be re-evaluated. Some fixed assets that had been fully depreciated after reaching their originally estimated useful life were still in use. New estimates of further useful life had to be made to determine their new value, from which depreciation could be deducted for another time. Intense discussions in the literature accompanied these processes.[47]

(5) Despite all this theoretical thinking, it was difficult to analyze a company's economic performance from its annual reporting. Counterbalancing (netting) was widespread, supported by the argument that competitors would otherwise have access to trade secrets. For instance, reporting sales of corporations was made mandatory in Germany as late as 1965; before, it could be hidden by reporting only the difference between sales, increase or decrease in the stock of finished products, and materials costs. Research demonstrated how much more information could be drawn from reporting without such counterbalancing.[48]

This leads back to an old problem, namely, what rules should be observed to make accounting a reliable and valid source of information beyond such issues as valuation or depreciation. To deal with the problem, particular reporting standards or principles[49] were developed. In discussing a proposal for a new corporation law, the following standards are mentioned:

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1928, 161 et seq.; Klaus Brockhoff, Steuerliche Abschreibungen in den USA, *Außenwirtschaftsdienst des Beriebsberaters,* 1967, Vol. 13, 464–471.

[46] Harold Hotelling, A General Theory of Depreciation, *Journal of the American Statistical Association,* 1925, Vol. 20, Issue 151, 340–353.

[47] Karl Hax, Bewertungsprobleme in der DM-Eröffnungsbilanz, *Zeitschrift für handelswissenschaftliche Forschung,* 1949, Vol. 1 n.s., 543–547; Heuer/von Schilling, Berücksichtigung von Wertansätzen in der DM-Eröffnungsbilanz, *Zeitschrift für handelswissenschaftliche Forschung,* 1950, Vol. 2 n.s., 218–233; Gustav Plum, Die DM-Umstellung der Aktiengesellschaft, *Zeitschrift für Betriebswirtschaft,* 1952, Vol. 22, 285–292; Gustav Plum, Die DM-Umstellung und ihre Auswirkung in den einzelnen Wirtschaftszweigen, *Zeitschrift für Betriebswirtschaft,* 1952, Vol. 22, 355–364.

[48] Fritz Schmidt, Die verkrüppelte Erfolgsrechnung, *Zeitschrift für Betriebswirtschaft,* 1928, (reprint from issue) 2/1–19.

[49] American Accounting Association, *A Tentative Treatise of Accounting Principles,* 1936. See: Gary John Previts/Barbara Dubis Merino, *A History of Accounting in America. An Historical Interpretation of the Cultural Significance of Accounting,* New York et al. 1979, 274. It is reported that university instructors had little influence on such developments until the 1930s.

- Clarity of reporting, meaning that with the items presented, it should be possible to answer all "important" business questions.
- True reporting, meaning that the principle of valuation of the items in the balance should be uniform. Hidden reserves should be banned altogether.
- Exact information on the "real state of capital and return" of the particular period. No manipulation to shift returns between periods should be permitted.
- Protection of creditors should be a principle of valuation. Immaterial assets cannot be shown in the balance (at the time), but their cost enter into the profit and loss statement and can thus indirectly influence the balance.
- No irrational accounting for precautions and security reasons should be allowed.
- The legislator should recognize the information demands of minority shareholders and other stakeholders; concerning employees, this may call for special legislation.[50]

Obviously, these standards are not mutually exclusive and open to interpretations. The idea of valuations to protect the interests of creditors was very highly rated in German financial accounting theory and practice. The "*US-General Accepted Accounting Principles"* of 1939 place high weight on substance over form, thus avoiding detailed regulations and fair representation of the assets and liabilities. With the advent of more internationalization of the economies and with standard-setting at supranational levels (*International Accounting Standards* by the *International Accounting Standards Committee* starting in 1973, and later regulations by the European Union), the German standards gave way to the idea of a true and fair view to help financial markets assess management's performance. Creditor protection did not permit to show expected future profits at all, while possible future losses had to be reported as soon as they became recognizable at full value. This is substantially different from fair value accounting.

(6) In summary, accounting assumes an important position within the discipline of business administration. It has been developed to a discipline itself. This happened in part as a reaction to more complexity of business operations. Another impulse arose from the spread between ownership and management of large business establishment and legal arrangement that limited liability vis-à-vis various stakeholder groups. Dependence on codified law is strong. More recently, international business activities and financial operations have called for and introduced international regulations of accounting.

### *10.2.2 Human Resources and Organization*

The efficient use of human labor had already been planned in the large-scale projects of antiquity. Forced labor by hierarchical organizations played a major role.

[50]Fritz Schmidt, Der Jahresabschluss in der Aktienrechtsreform, *Archiv für das Revisions- und Treuhandwesen,* 1931, Vol. 27, 5/1–14.

Interestingly, this has already been described by *Charles Babbage* (1791–1871), who at the time of the industrial revolution in England dealt in detail with the control of labor and the cooperation of man and machine.[51] Apparently, independently of this work, a discipline called "scientific management" by its main protagonist developed in the USA. Scientific management is also called "Taylorism" by others, using the name of its most influential representative.[52] This discipline has its precursors in the necessity of organizing large-scale, complex production.[53] It went far beyond this by developing techniques such as "*standard costing, variance analysis, time-and-motion studies, budgeting, centralized purchasing, etc*."[54]

(1) *Frederick Winslow Taylor* (1856–1915) assumes a practical approach to thinking about how to increase the efficiency of labor systematically (Fig. 10.2). In his idealistic view, the savings thus gained should increase the scope for distribution to all. *Taylor*'s first principle is "high wages, low production costs." This should be achieved through incentive-driven labor and motivated workers.[55] The following measures should achieve the realization of the principle:

1. *To assign to each worker the "highest" class of work he is capable of doing* (meaning the most challenging job the person is able to perform).
2. *Every worker should be encouraged to reach the maximum performance of a skilled man of his class with not too much effort.*
3. *According to the nature of the work, every eagerly advancing worker should be paid from 30% to 100% higher than the average for his class.*[56]

For this purpose, time-motion studies are carried out, from which standards are developed, and stimulating forms of remuneration or incentive payments are used. Engineers, like *Taylor* himself, were the first to devote themselves to these types of research in Germany. From 1921 onwards, several associations were founded for this purpose; some still exist under different names. Particularly well known were the *Reichskuratorium für Wirtschaftlichkeit in Industrie und Handel* (founded in 1921), which today pursues an extended field of activity under the name *Rationalisierungs- und Innovationszentrum der Deutschen Wirtschaft (Rationalization and Innovation Centre of German Economy),* and the *Reichsausschuß für*

[51] Charles Babbage, *On the Economy of Machinery and Manufacture*, London 1832, 35, 240 et seq.

[52] Vadim I. Marshev, *History of Management Thought. Genesis and Development from Ancient Origins to the Present Times,* Cham 2021, reports almost exclusively on human resource management and organization, including the different "schools" that emerged in this field.

[53] In summary: Erich Frese, *Organisationstheorie. Historische Entwicklung - Ansätze - Perspektiven,* 2nd ed., Wiesbaden 1992, 37 et seq.

[54] Richard K. Fleischman, The Theory/Practice Schism in Cost Accounting History. In: Richard K. Fleischman/VaughanS. Redcliffe/Paul A. Shoemaker, eds., *Doing Accounting History. Contributions to the Development of Accounting Thought*, Amsterdam et al. 2003, 63–79, here 73.

[55] Frederick W. Taylor, Shop Management, *Transactions of the American Society of Mechanical Engineers*, 1903, Vol. 16, 1337–1480; Frederick W. Taylor, *Die Betriebsleitung insbesondere der Werkstätten,* 2nd ed., (supplemented and edited by A. Wallichs), Berlin 1912, here 7.

[56] Ibid.

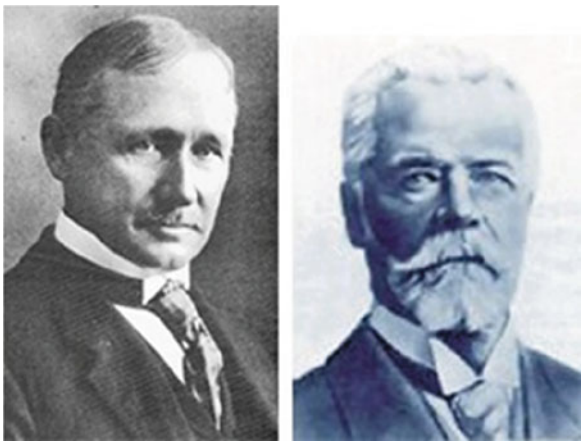


**Fig. 10.2** Frederick W. Taylor (left) and Henry Fayol. Source: Wikipedia.org; cercledesconnaisances.blogspot.com

*Arbeitszeitermittlung (REFA) (Reich Committee for Working Time Determination)* from 1924, which since 1995 has also been working on a greatly extended field of activity as the *Verband für Arbeitsgestaltung, Betriebsorganisation und Unternehmensentwicklung (Association for Work Design, Business Organization, and Development).* Initially, this organization mainly trained timekeepers, whose records were used to determine standards for the performance of activities and the organization of work processes. Such studies are sometimes arranged under the term "business science," which is borrowed from "scientific management."

The plant in the large-scale enterprise should—according to *Taylor*'s conception—not be supervised by one foreman alone, but by functionally specialized foremen: work preparation foreman, speed foreman, inspection foreman, maintenance foreman. A work office supports these. In this office, a work dispatcher determines the order of processing jobs. Furthermore, an instruction officer informs workers and foremen on technical and accounting details; a time and cost officer, who determines work schedules and reviews and forwards job-specific time records; a supervisory officer responsible for discipline; and, if necessary, an "instructional superintendent" to arbitrate disputes.[57] Consequently, this organization results in a worker receiving instructions from multiple supervisors (also called a multi-line system). This system can easily lead to conflicting orders.

Imagining the practice of these organizational details, it is easy to forget about *Taylor*'s idea that good and trusting cooperation should be cultivated between workers and managers. He is deeply convinced of an identity of interests between employers and employees.

These ideas, as well as practical experiences, are integrated into a system:

> Scientific management, in its essence, consists of a certain philosophy, which results as stated before in a combination of four great underlying principles of management.
>
> First. The development of a true science.

[57] Ibid., 41 et seq.

> Second. The scientific selection of the workman.
> Third. His scientific education and development.
> Fourth. Intimate, friendly cooperation between the management and the men.[58]

The idea mentioned in the fourth place, in particular, had already been expressed much earlier in some German publications as a wish: "*The relationship of the entrepreneur to his workers should, for material and moral reasons, be a relationship of faithful and devoted care."*[59] However, it was also critically remarked that opposed to this *"illusion . . ., human nature and the character of economic life . . . (present themselves) as much too powerful obstacles*."[60] Taylorism applied to its extreme resulted in a "systemic state" of factory organization. *Henry Ford* introduced it to his factories, achieving short-term success. Unfortunately, the organization became too rigid to master a model change that was caused by demand changes. This initiated a competitive disadvantage that helped General Motors gain market share in the longer run.[61]

Empirically-based studies of engineers were initially hardly noticed by the main currents of German business administration.[62] *Guido Fischer* developed a normative-ethically based counter-position to *Taylor*'s ideas in his work on "*Mensch und Arbeit im Betrieb" (Men and Work in the Firm).*[63] In *Fischer*'s view, the lack of attention to "social and psychological consequences" of work led to discarding "most . . . doctrines very soon;" "scientification" had not succeeded.[64] From the point of view of technology, *Taylor*'s striving for maximum performance has been reproached for being at best a theoretical model, as could also be found in *von*

[58] Frederick Winslow Taylor, *The Principles of Scientific Management,* New York/London 1911 (reprint Düsseldorf 1996), 67 et seq. This work has a fascinating history. Attempts by Taylor to publish the 75 pages in the journal of the American Society of Mechanical Engineers led, after prolonged stalling by the editors, to a private printing by Taylor. The private printing was published by Harper & Brothers in 1911. This was followed in the same year by the generally accessible edition cited here. Cf. Carol Carlson Dean, The Principles of Scientific Management by Fred Taylor: Exposures in print beyond the private printing, *Journal of Management History,* 1997, Vol. 3, 4–17; Carol Carlson Dean, The Principles of Scientific Management by Frederick W. Taylor: the private printing, *Ibid*., 18–30.

[59] Arwed Emminghaus, *Allgemeine Gewerkslehre,* Berlin 1868, 73.

[60] Max Haushofer, *Der Industriebetrieb,* Stuttgart 1894, 178.

[61] William J. Abernathy/Kevin Wayne, Limits to the Learning Curve, *Harvard Business Review,* 1974, Vol. 52, 5/109–119.

[62] Erich Frese, Organisation - Hundert Jahre Betriebswirtschaftliche Organisationswissenschaft in Deutschland: Aus der nationalen Nische in die Welt der internationalen Paradigmen. In: Eduard Gaugler/Richard Köhler, *Entwicklungen der Betriebswirtschaftslehre. 100 Jahre Fachdisziplin - zugleich eine Verlagsgeschichte,* Stuttgart 2002, 223–246, here 226 et seq. Similarly: Gertraude Krell, Geschichte der Personallehre. In: Michael Lingenfelder, ed., *100 Jahre Betriebswirtschaftslehre in Deutschland 1898–1998,* München (Munich) 1999, 125–140. Friedrich von Gottl-Ottlilienfeld, *Vom Sinn der Rationalisierung,* Jena 1929.

[63] Guido Fischer, *Mensch und Arbeit im Betrieb, Ein Beitrag zur sozialen Betriebsgestaltung, Stuttgart* 1929, 2nd ed., Stuttgart 1949.

[64] Erich Gutenberg, *Grundlagen der Betriebswirtschaftslehre, Vol. 1: Die Produktion,* 7th ed., Berlin et al. 1962, 106.

*Thünen*, and for being a "degeneration," an "old-age phenomenon" of modern technology.[65] With this criticism in mind, the concept and meaning of rationalization were developed less in technical than in economic terms. The strict orientation on performance motivation primarily through financial incentives goes so far as to extent profit sharing from top management to lower hierarchical levels—again in congruence with earlier Anglo-American thinking.[66] Interestingly, this is not restricted to repetitive industrial operations but also proposed for the banking industry.[67]

(2) Experiments carried out in the 1920s on the relationship between working conditions and work results or performance generated a great deal of interest and paved a way for social-psychological studies to enter the business world.[68] However, the so-called Hawthorne experiments, carried out by *Elton Mayo* and *T. N. Whitehead* in 1924 in a Western Electric factory, became widely known only later.[69] According to these researchers, productivity is enhanced less by specific physical working conditions but more by the attention given to the workers. However, this is disputed based on a recent data analysis because of an originally unnoticed interaction with a weekday effect.[70] Anyhow, psychology and sociology become aware of the world within companies in many countries. However, the behavioral sciences remain in the shadow of the economic orientation of business administration, even into the 1970s.

(3) In contrast to the technological-empirical approaches in the USA, publications dealing with wage determination, rationalization, and working conditions dominated in German business administration at this time[71]: Leading discussants were *Heinrich Nicklisch, Guido Fischer*, and *Rudolf Dietrich.*[72] Their approaches are normative-

[65] Friedrich von Gottl-Ottlilienfeld, *Wirtschaft und Technik,* (Grundriss der Sozialökonomik, II. div., Die natürlichen und technischen Beziehungen der Wirtschaft, II. part) 2nd ed., Tübingen 1923, 164.

[66] Charles Babbage, *On the Economy of Machinery and Manufacture,* London 1832, 177. Henry R. Towne, Gain-Sharing*, Transactions of the American Society of Mechanical Engineers,* 1888/89, Vol. 10, 600–626.

[67] Hans Rehmenklau, *Menschenökonomie im Bankbetrieb,* Berlin 1930.

[68] Emil Walter-Busch, *Das Auge der Firma, Mayos Hawthorne-Experimente und die Harvard Business School 1900–1960*, Stuttgart 1989, 65 et seq., with particular reference to the role of Harvard Business School in this development, 48 et seq.

[69] F. J. Roethlisberger/W. J. Dickson, *Management and the Worker,* Cambridge/MA 1939. German experts learned of the studies from the paper: Guido Fischer, Betriebspsychologische Untersuchungen bei der Western Electric Company, Inc. (USA), *Der Organisator,* 1931, Vol. 13, 207–210.

[70] Stephen D. Levitt/John A. List, Was there really a Hawthorne Effect at the Hawthorne Plant? An Analysis of the original illumination experiments, *American Economic Journal: Applied Economics,* 2011, Vol. 3, 224–238.

[71] Arwed Emminghaus should again be mentioned as a precursor: Allgemeine Gewerkslehre, Berlin 1868, 75. He advocates a patriarchal position with far-reaching duties of care on the employer's part.

[72] Rudolf Dietrich, *Betriebs-Wissenschaft,* München (Munich)/Berlin 1914.

judgmental from different perspectives, but on the whole, they are described as community-oriented or harmonious-communal[73] when referring to the relationship between employees and employers. After the Second World War, comparable orientations continued to be pursued by the first chair founded in this field in 1961 at the University of Mannheim, which was held by *August Marx* (1906–1990).[74] Only in later years and referring to the "New Institutional Economics," a turn towards an economic analysis of human relations arose, again inspired by research from the USA.[75] This research links human resource management to organizational research, to which we will return below. The authors proceed in theory-building by systematic analysis.

(4) Organizational studies in the administration of companies initially remained almost ineffective.[76] This is where *Henry Fayol* (1841–1920)[77] steps in (Fig. 10.2). *Fayol*'s experiences as an engineer in the management of large French companies[78] serve as the basis of a theory of business functions and a description of management tasks. The following functions are identified as existing in all firms: production, the commercial function (purchasing and sales), finance, accounting, security, and administration (management). The latter has to make forecasts as a basis for its planning, establish the organization, exercise leadership, carry out coordination or apply measures to coordinate and exercise control. These functional patterns were considered relevant at all times.[79] Today, the technical function (= production) is interpreted in a more extensive sense (reaching out to technology and innovation management), and the commercial function is split into two different functions (procurement and marketing). Since strictly hierarchical organizational patterns and the principle of unity of order (single-line system) are considered ideal, instructions are only given by one superior. Only via this person should communication with all other persons in the firm be channeled, even if this communication is

[73] Getraude Krell, *Vergemeinschaftende Personalpolitik,* München (Munich) 1994.

[74] Ralf Rosenberger, *Experten für Humankapital – Die Entdeckung des Personalmanagements in der Bundesrepublik Deutschland,* München (Munich) 2008, 367.

[75] Dieter Sadowski, "Personalökonomie und Personalwirtschaftslehre" - eine Spurensuche. In: Wenzel Matiaske/Wolfgang Weber, *Ideengeschichte der BWL. ABWL, Organisation, Personal, Rechnungswesen und Steuern,* Wiesbaden 2017, 423–438. He refers especially to Edward P. Lazear, *Personnel Economics,* Cambridge/MA 1995.

[76] Henry Fayol, *Administration Industrielle et Générale*, Paris 1916. A course of study for "administrative engineers" based on this failed as early as the 1920s.

[77] Jean-Louis Peancelle/Cameron Guthrie, The private life of Henri Fayol and his motivation to build a management science, *Journal of Management History,* 2012, Vol. 18, 469–487.

[78] Daniel A. Wren, Henri Fayol: learning from experience, *Journal of Management History,* 1995, Vol. 1, 5–12, where reference is also made to a 1908 lecture outlining the core theses: L'exposé de principes généraux d'administration.

[79] Michael J. Fels, Fayol stands the test of time, *Journal of Management History,* 2000, Vol. 6, 345–360, compares Fayol with Hales, Kotter, and Mintzberg. The analogous correspondence of Fayolian principles to the rules for Benedictine and Cistercian monasteries is discussed by: Michael Henry Kennedy, Fayol's principles and the Rule of St. Benedict: is there anything new under the sun? *Journal of Management History,* 1999, Vol. 5, 269–276.

directed to an employee at the same hierarchical level. Obviously, this leads to inefficiently long information and decision paths. As a remedy, the immediate information exchange between subordinate hierarchical levels can be installed if permitted by the superiors. This is called "*Fayol*'s bridge."[80]

(5) *Fayol* and *Taylor* propose different models of organization for larger firms. Their recommendations are pragmatic, and they search for technologies. Organization research in German business administration turned to similar problems about 15 to 20 years later. In addition to human resource management, it deals with design alternatives for organizations, both for their structures and process organization.[81] These approaches are different from those abroad: they are directed towards theory building, whereas abroad pragmatically oriented contributions to improving technologies are proposed. For example, we refer to the perceptions of organizations by three authors.[82] For the sake of brevity, this uses a tabular form. Table 10.1 exhibits different and common elements of the theories. *Frese* points at further authors and compares their contributions with American literature.[83]

*Gutenberg* is interested in the enterprise as a whole, and therefore particular influences of its organization are eliminated or "neutralized" by "isolated abstraction;" this is the same procedure that was applied by *von Thünen* (Sect. 4.2). The other two authors place the organization at the focal point of their theoretical observations. Consequently, irrational conditions, as considered by *Mellerowicz,* or non-compliance behaviors included in *Nordsieck's* theories, cannot have a place in *Gutenberg*'s. Organizational "elements" are processes in *Gutenberg's* and tasks in the case of *Nordsieck.* These elements are carried out using division of labor and later coordination, observing the principle of profit orientation (or the principle of economic efficiency). The fact that *Nordsieck* restricts himself to ongoing tasks that do not remain identical is difficult to understand. Whereas *Gutenberg* and *Mellerowicz* assume economic objectives, *Nordsieck*'s goal is abstractly stated ("socially objectified"). While unspecified, it could also open the agenda to study non-profit organizations. *Nordsieck* unites management tasks as part of an organi-

[80] Henri Fayol, *General and Industrial Management*. Revised by Irwin Gray, New York (IEEE) 1984.

[81] For example: Konrad Mellerowicz, *Allgemeine Betriebswirtschaftslehre der Unternehmung,* Berlin/Leipzig 1929; Fritz Nordsieck, *Die schaubildliche Erfassung und Untersuchung der Betriebsorganisation,* Stuttgart 1932; Karl Wilhelm Hennig, *Einführung in die betriebswirtschaftliche Organisationslehre,* Wiesbaden 1934; Friedrich von Gottl-Ottlilienfeld, *Vom Sinn der Rationalisierung,* Jena 1929.

[82] In the following see: Erich Gutenberg, *Die Unternehmung als Gegenstand betriebswirtschaftlicher Theorie,* Berlin/Wien (Vienna) 1929; Konrad Mellerowicz, *Allgemeine Betriebswirtschaftslehre der Unternehmung,* Berlin/Leipzig 1929; Fritz Nordsieck, *Grundlagen der Organisationslehre,* Stuttgart 1934.

[83] Erich Frese, *Organisationstheorie, Historische Entwicklung - Ansätze - Perspektiven,* 2nd ed., Wiesbaden 1992, 57 et seq., 97 et seq.

**Table 10.1** Three theoretical approaches to organization

| Author | Gutenberg (1929) | Mellerowicz (1929) | Nordsieck (1934) |
|---|---|---|---|
| Relationship between enterprise and its organization | The enterprise *has* an organization. This is not separate from the business. | Organization is a production factor. It concerns structures and processes of the enterprise. | Organization is the order of a regulatory system, determined by the task (purpose) of the firm of the enterprise. |
| Tasks and objects | The objects of organization are basic processes. Division of labor and task assignment to processes should be performed. | Tasks of organization: Choice of legal form, choice of location, internal organization. Concerning these tasks: Division of labor, recombination of labor, specialization, cooperation among units | Coordination of human activities for the completion of ongoing tasks. Separation and unification of objects concerning objectives of the enterprise. Aspects of structures and processes, planning and realization. |
| Objectives | Profit orientation of the organization. Search for general rules of procedure, also from practice. | Combination of capital and labor for achieving profits and observation of constraints. | Solution of a task, i. e., a socially objectified goal. |
| Constraints | Organization is eliminated as a source of its own problems. Systems of competencies and communication. | Rational conditions (technology, law of returns) and irrational conditions (dependence on markets). | Sanctions for non-compliance of regulations that causes disruptions. |
| Resources | Facilities, production factors, accounting | Technologies, means. | Resources |
| Special features | Researching the enterprise under the assumption of neutralized organization. | Taylor's scientific management is critically applied | Ongoing tasks are subject to changes in their object, the rhythm of performance, objectives. |

zation. Similar tasks were considered separate from an organization by *Fayol.* Reference to "scientific management" is made by *Mellerowicz* because its definition fits into his theory; in *Gutenberg,* this does not make sense. *Mellerowicz* and *Erich Kosiol* (1899–1990), the latter in continuation of *Nordsieck*'s work,[84] pursue this line of research into the post-war period.

Organizational research in Germany played only a limited role in this period. Three reasons can explain this: the omission of findings from neighboring social science disciplines, the strict demarcation line with the engineering sciences, and a lack of demand for findings in organizational economics because of contextual circumstances—e.g., reduced competitive pressure due to cartelization or

[84] Erich Kosiol, *Organisation der Unternehmung,* Wiesbaden 1962.

government regulation.[85] Furthermore, accounting (Sect. 10.2.1) appears to have been more open to practical problems and their solutions, while organizational analyses (except for *Nordsieck*'s) were strictly theoretically oriented. This also sets it apart from the practitioners' works like *Taylor* and *Fayol.*

(6) Business administration in the USA appears to have been more ready to open up to other disciplines more easily. After the engineering approaches of *Taylor* and *Fayol*, which were criticized as organization mythology,[86] behavioral and systems theory approaches emerged[87]:

- The so-called "process school" originated from works by *Chester J. Barnard.*[88] Management functions or activities based on particular management principles considered both the internal leadership in firms and the observation of its environment.
- Human relations and the possibilities to influence them by motivational incentives or other "skills" of management had already been considered by *Barnard* but were more extensively studied by *Robert M. Cyert, James G. March, and Herbert A. Simon.*[89] Power plays an important role in human relations. Five "bases" of power were identified and discussed: legitimate, coercive, expert, reward, and referent power.[90]
- Concerning leadership, *Douglas M. McGregor* introduced two perceptions that managers can have about their employees: Theory X describes lazy persons, who react to positive or negative incentives, who need close supervision, and well-defined tasks. Theory Y describes self-motivated persons, who look for additional challenges to develop their personality. These people need little surveillance; they are open to teamwork, and they exhibit emphatic behavior.[91] Similar ideas lead to the "managerial grid" that describes leadership styles considered independent of each other on its rectangular axes (Fig. 10.3). On the abscissa of a diagram, leadership ranges from minimum effort to get work done to securing efficient operations with little concern for human needs or their interference with the operations. On the ordinate, the maximum is achieved with full attention to the

[85] Erich Frese, Organisation - Hundert Jahre Betriebswirtschaftliche Organisationswissenschaft in Deutschland: Aus der nationalen Nische in die Welt der internationalen Paradigmen. In: Eduard Gaugler/Richard Köhler, *Entwicklungen der Betriebswirtschaftslehre. 100 Jahre Fachdisziplin - zugleich eine Verlagsgeschichte,* Stuttgart 2002, 223–246, here 227 et seq.

[86] Richard M. Cyert/James G. March, *A Behavioral Theory of the Firm*, Englewood Cliffs/NJ 1963.

[87] Edwin Rühli, Betriebswirtschaftslehre nach dem Zweiten Weltkrieg (1945 – ca. 1970). In: Eduard Gaugler/Richard Köhler, *Entwicklungen der Betriebswirtschaftslehre. 100 Jahre Fachdisziplin - zugleich eine Verlagsgeschichte,* Stuttgart 2002, 111–133.

[88] Chester J. Barnard, *The Functions of the Executive,* Cambridge/MA 1938.

[89] Richard M. Cyert/James G. March, *A Behavioral Theory of the Firm*, Englewood Cliffs/NJ 1963; Herbert A. Simon, *Administrative Behavior. A Study of Decision Making Behavior in Administrative Organization,* New York 1945.

[90] John R. P. French/Bartram Raven, The Bases of Social Power. In: Dwight Cartwright, ed., *Studies in Social Power,* Ann Arbor/MI 1959, 150–167.

[91] Douglas M. McGregor, *The Human Side of Enterprise,* New York, et al. 1960.

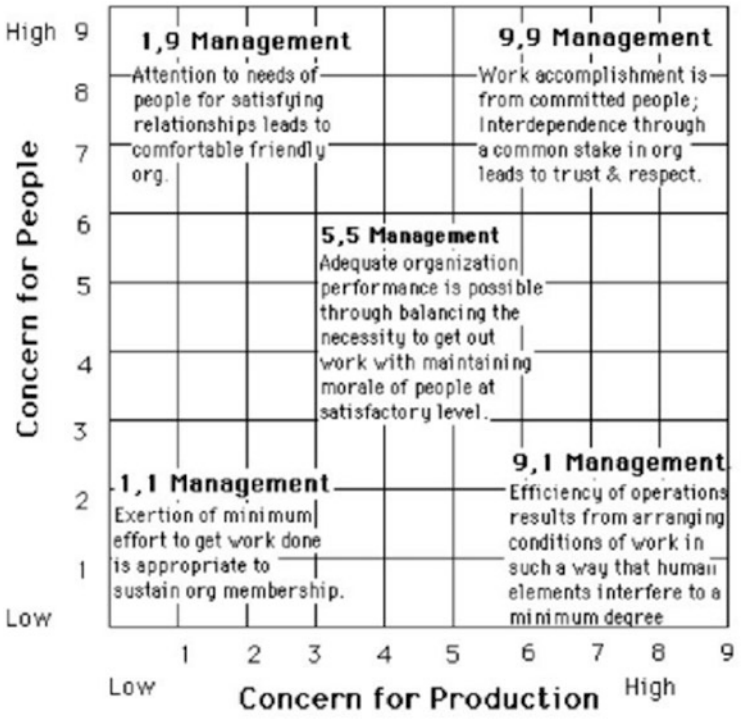



**Fig. 10.3** The Blake and Mouton managerial grid. Source: en.Wikipedia.com, CC BY 4.0

needs of people and satisfying professional interpersonal relations. The extreme of both styles combined is characterized by accomplishing work from committed people. The organization develops a common interest in trust and respect. Finding an "ideal" leadership style is among the functions of the grid. The balancing of both extreme styles describes the compromising style.[92] The managerial grid follows one-dimensional characterizations of leadership styles and is succeeded by two- or three-dimensional models of leadership styles.

- The systems approach looks at a company as a social system that could be steered and might even install regulations that allow it to reach a self-steering stage of homeostasis, resilient to external shocks. It adopted a more formal approach.[93] "*The steering is determined by objectives and problem-solving behavior. Because the system is recognized as being extremely complex, it is not only top management which influences decision-making, goal setting, and goal accomplishment,*

[92] Jane S. Mouton/Robert R. Blake *The Managerial Grid,* Houston 1964.

[93] Stafford S. Beer, *Cybernetics and Management*, London 1959; Norbert Wiener, *Cybernetics: Or Control and Communication in the Animal and the Machine*, 2nd ed., Paris/Cambridge/MA 1961; Hans Ulrich, *Die Unternehmung als produktives soziales System*, Bern (Berne) 1968.

*but all employees in a participative effort."*[94] Further development leads to the "contingency approach" that studies interrelationships among the elements of a system and the system's environment.[95] This includes empirical studies. However, "*hopes that the system theory approach would facilitate the derivation of general propositions about the firm as a dynamic system have not yet been realized…".*[96]

(7) The specialization covered in this section introduces four different methodological approaches. *Taylor* and *Fayol* develop pragmatic and almost mono-variable explanations and recommendations. The early German research on organization is theoretical and also basically mono-variable because of its primary economic orientation. What does not fit these theories is either mentally excluded or considered disturbing. Later German research is massively value-laden but considers multiple variables. The later US research is again more pragmatic and multi-variable.

### *10.2.3 From Sales Management to Marketing*

(1) The term "marketing" has been used in the English-speaking world for a very long time. However, its meaning has changed from administrating sales to a management system that addresses both the inside and the outside of a company, thereby encompassing functions from procurement to sales and after-sales services, with a long-term customer orientation.[97] In the German-speaking world, sales economics ("Absatzwirtschaft") was the term used until the end of the 1960s, when it was followed by adopting "marketing" in the modern sense. In 1963, the differences between the meanings of sales economics and marketing were made explicit, with the latter being addressed as market-oriented management.[98] *Ernest Kulhavy* (1925)

[94] Horst Albach, Business Administration. History in German-Speaking Countries. In: Erwin Grochla et al., *Handbook of German Business Management*, Vol. 1, Stuttgart 1990, 247–270, here 259 et seq.

[95] Paul R. Lawrence/Jay Lorsch, *Organization and Environment: Managing Differentiation and Integration,* Boston/MA 1969.

[96] Horst Albach, Business Administration. History in German-Speaking Countries. In: Erwin Grochla et al., *Handbook of German Business Management*, Vol. 1, Stuttgart 1990, 247–270, here 259 et seq.

[97] This is widely reported, e.g.: P. D. Converse, The Development of the Science of Marketing, An Exploratory Study, *The Journal of Marketing,* 1945, Vol. X, 1/14–23; R. Bartels, *The History of Marketing Thought*, 3rd ed., Columbus/OH 1988; Michael Enright, Marketing and the Conflicting Dates of its Emergence: Hotchkiss, Bartels, the 'Fifties School' and Alternative Accounts, *Journal of Marketing Management,* 2002, Vol. 18, 445–461.

[98] Robert Nieschlag, Was bedeutet die Marketing-Konzeption für die Lehre von der Absatzwirtschaft? *Zeitschrift für handelswissenschaftliche Forschung,* 1963, Vol. 15 N. S., 549–559. However, the same author co-authored with Erich Dichtl and Hans Hörschgen a widely read textbook under the title "*Die Lehre von der Absatzwirtschaft*" (Berlin 1968), which changed its title as late as 1997 to "*Marketing*" with the 18th edition.

had chosen marketing to name his chaired professorship at the University of Linz/Austria in 1966. *Heribert Meffert* (1937) soon followed when he was appointed to the University of Münster in 1969.

Since 1902 marketing courses have been offered at US universities. The University of Michigan was first, soon followed by the University of Illinois in 1904/1905.[99] Marketing research began in both geographical areas mentioned above from the first decennium of the twentieth century onwards. Under the influence of *Heinrich Nicklisch*, research on "advertising science" was established at the Mannheim School of Management in 1914, which added a laboratory in 1919. The institute even cooperated with a psychologist interested in advertising.[100] After *Nicklisch's* transfer to the Berlin School of Management, a corresponding teaching and research program was initiated there. *Nicklisch*'s assistant, *Rudolf Seyffert* (1893–1971), actively followed the same intention at the University of Cologne.[101] There, he published the first edition of his book on "general" advertising.[102] Contributions to "sales economics" appeared in the general management journals, such as the "*Zeitschrift für handelswissenschaftliche Forschung,"* with a focus on customer relations ("*Kundschaftsverkehr").* In "*Zeitschrift für Handelswissenschaft und Handelspraxis*" relatively more contributions focus on advertising. These papers were less scientifically but more experience-driven and practically oriented in the early years.

Marketing developed rapidly. Different schools of thought document the developments.[103] In this short review, we follow important steps of marketing developments as they unfold over time.

(2) It is generally agreed that marketing followed the emergence of large-scale production not serving individual customers but mass markets. In the beginning, attention was given to the different functions that had to be exercised to meet the sales targets of firms that resulted from their production capacity. In the USA,

[99] H. H. Maynard, Marketing Courses prior to 1910, *Journal of Marketing,* 1940, Vol.5, 382–382. R. Bartels, *The History of Marketing Thought*, 3rd ed., Columbus/OH 1988.

[100] Richard Köhler, Marketing -Von der Reklame zur Konzeption einer marktorientierten Unternehmensführung. In: Eduard Gaugler/Richard Köhler, *Entwicklungen der Betriebswirtschaftslehre. 100 Jahre Fachdisziplin - zugleich eine Verlagsgeschichte,* Stuttgart 2002, 355–384, here 365.

[101] Robert Nieschlag, Die Werbung in Forschung und Lehre an deutschsprachigen Hochschulen. In: Deutsche Werbewissenschaftliche Gesellschaft, ed., *Werbung als Forschungsgebiet und Lehrfach an Hochschulen,* Cologne 1967, 53–64, here 62; Claudia Regnery, *Deutsche Werbeforschung 1900–1945,* Münster 2003.

[102] Rudolf Seyffert, *Allgemeine Werbelehre,* Stuttgart 1929.

[103] A comprehensive account of ten "schools of thought" is offered by: Eric H. Shaw/D. G. Brian Jones, A history of schools of marketing thought, *Marketing Theory,* 2005, Vol. 5, 239–281. Other classifications of such schools of thought are given by: Philip Kotler/Gary Armstrong, *Principles of Marketing,* 1st ed., Englewood Cliffs/NJ 1980; J. N. Sheth/D. M. Gardner, Marketing Theory: Evolution and Evaluation, New York/NY 1988.

publications on this subject appeared since 1912,[104] while in the German-speaking world, comparable studies became available somewhat later.[105] Furthermore, the study of middlemen between producers and consumers, their functions, and the cost of their involvement attracted attention. These studies extended the literature on commerce that had developed before. Retail and agribusiness produced astonishing marketing achievements until the early 1930s. English-language contributions on intermediaries appear from the second decade of the twentieth century onwards,[106] while German-language studies were mostly published after 1950.[107] These works are primarily descriptive. They emphasize arbitrage and risk-taking as functions of trading companies.

Discussions on whether sales should exercise a dominant position within the corporate planning framework (the so-called "primacy of sales") were observed in Germany in the 1930s.[108] They met with opposition,[109] but disappeared soon due to the generally unfavorable economic conditions. The first World War, the following hyperinflation, the world economic crisis of 1929, and the economic policy initiated by the Nazi government (Sect. 9.1) were unfavorable to developing consumers with strong buying power. Therefore, marketing as a business function was not really limiting business activities. According to the "*law of equalization of planning*"[110] (Sect. 9.3.2), it was not dominating hierarchical planning processes. Instead, when demand exceeds supply and costs per item can be reduced in the case of economies of scale, marketing does not get much attention. Although German researchers knew of the developments in the USA,[111] the discipline recognized the intense power of its context in choosing relevant topics. However, as early as 1913, a textbook aimed at

[104] Arch W. Shaw, Some Problems in Market Distribution, *Quarterly Journal of Economics,* 1912, Vol. 26, 706–765; L. D. H. Weld, Marketing Functions and Mercantile Organizations, *American Economic Review,* 1917, Vol. 7, 306–318; F. Clark, *Principles of Marketing,* New York/NY 1922.

[105] Karl Oberparleiter, *Funktionen- und Risikolehre des Warenhandels,* Berlin/Wien 1930; Erich Schäfer, Über die zukünftige Gestalt der Absatzlehre. In: Georg Bergler/Erich Schäfer, eds, *Um die Zukunft der deutschen Absatzwirtschaft,* Berlin 1936, 30–54.

[106] L. D. H. Weld, Marketing Functions and Mercantile Organizations, *American Economic Review,* Vol. 7, 1917, 306–318; F. Clark, *Principles of Marketing,* New York/NY 1922.

[107] From the abundance of contributions, we mention: Rudolf Seyffert, *Wirtschaftslehre des Handels,* Köln (Cologne) et al. 1951; Robert Nieschlag, *Die Dynamik der Betriebsformen des Handels,* Essen 1954; Bruno Tietz, *Bildung und Verwendung von Typen in der Betriebswirtschaftslehre, dargestellt am Beispiel der Messen und Ausstellungen,* Köln (Cologne)/Opladen 1960.

[108] Waldemar Koch, Die Gliederung der Vertriebsorganisation*, Die Betriebswirtschaft,* 1934, Vol. 27, 217–221, here 217.

[109] Arthur Lisowsky, Primat des Absatzes? *Zeitschrift für Betriebswirtschaft,* 1936, Vol. 13, 11–30.

[110] See Sect. 9.3.2, (5): Erich Gutenberg*, Grundlagen der Betriebswirtschaftslehre,* 1st ed., Berlin et al. 1951.

[111] Otto Richard Schnutenhaus, *Die Absatztechnik der amerikanischen industriellen Unternehmung,* Berlin 1927.

practitioners stated that sales depended on "the needs, means, and opinions of buyers;" the merchant had to know how to "attract and retain customers."[112]

(3) Soon it was recognized that mass markets were not homogenous. A segmenting approach to customers by product differentiation and advertising would be beneficial. The need for market segmentation is clearly recognized by *Horst Kliemann* (1896–1965),[113] the Oldenbourg publishing house's director (and later managing partner). He proposed buyer strata according to socio-demographic characteristics or leisure interests to be used to focus advertising. Furthermore, he discovered that it might be more relevant to appeal to buyers than to users in advertising, which is nicely illustrated in Fig. 10.4.[114] More extensive differentiation in the organizational buying process became known as buying centers.[115]

In practice, branding was also already well understood; research followed suit in this understanding.[116] These marketing activities required a good understanding of the markets and market research.[117] The economic environment with experiences of alternating prosperity and crises, more complex buyer behavior, and technical developments provided additional reasons for market research. At the business school of Nuremberg, an "Institute for the Observation of the Economy of the German Finished Products" was founded in 1925, which ten years later was transferred into the "Society for Consumer Research (Gesellschaft für Konsumforschung)." This society grew into one of the leading market research institutions.[118] At this institution originated the "*Handbuch der Verbrauchsforschung" (Handbook of Consumer Research),* which was published in 1940. It refers to the state of market research and the concept of utility derived by

[112] Tony Kellen, Kaufmännische Propaganda, in: Georg Obst, ed. *Ein Hand- und Lehrbuch der gesamten Handelswissenschaft,* Vol. 1, 4th ed., Leipzig 1913, 305–313, here 305.

[113] Wilhelm Vershofen, *Handbuch der Verbrauchsforschung.* Vol. 1, Berlin 1940.

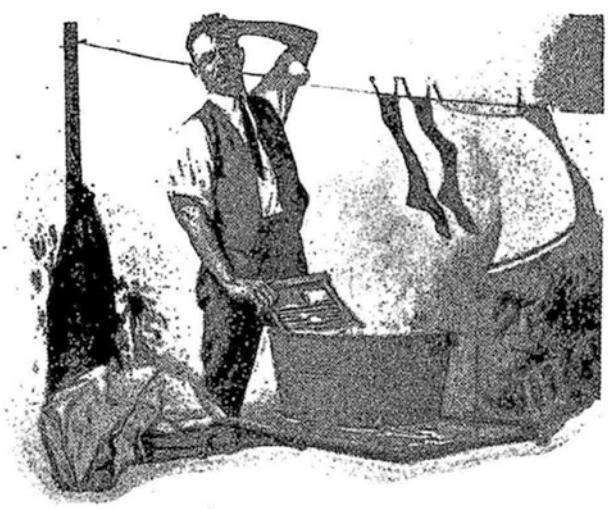
[114] Horst Kliemann, *Wie und wo erfasse ich Käufererschichten? Einteilung der Käufermassen in Interessenschichten als Grundlage des Verkaufs- und Produktionsplanes,* Berlin/Leipzig 1928.

[115] Patrick J. Robinson/C. W. Farris/Yoram Wind, *Industrial Buying and Creative Marketing,* Boston 1967.

[116] Franz Findeisen, *Der Markenartikel im Rahmen der Absatzökonomik der Betriebe,* Berlin 1924; Georg Bergler, *Der chemisch-pharmazeutische Markenartikel,* Berlin 1933. Among the observations reported in this book is the perceived price-quality relationship exemplified by a woman buying perfumes (ibid., 27).

[117] Cf. for overviews: Hartmut Berghoff, Marketing im 20. Jahrhundert. Absatzinstrument - Managementphilosophie - universelle Sozialtechnik, in: Hartmut Berghoff, ed., *Marketing-Geschichte. Die Genese einer modernen Sozialtechnik,* Frankfurt 2007, 11–60, here 37 et seq.; Uwe Spiekermann, "Der Konsument muss erobert werden." Agrar- und Handelsmarketing in Deutschland während der 1920er und 1930er Jahre. In: Hartmut Berghoff, ed.,*Marketing-Geschichte. Die Genese einer modernen Sozialtechnik,* Frankfurt 2007,123–147. Erich Schäfer, *Grundlagen der Marktbeobachtung,* Nürnberg (Nuremberg) 1928; Curt Sandig, *Bedarfsforschung,* Berlin 1934; Franz Findeisen, Marktanalyse, *Zeitschrift für Handelswissenschaft und Handelspraxis,* 1929, Vol. 22, 70–76.

[118] Georg Bergler, *Die Entwicklung der Verbrauchsforschung in Deutschland und die Gesellschaft für Konsumforschung bis zum Jahre 1945,* Kallmünz 1960.



If father did the washing just once!

If every father did the family washing next Monday there would be an electric washing machine in every home before next Saturday night.

For fathers are used to figuring costs. They'd say: "The electricity for a week's washing costs less than a cake of soap. Human time and strength are too precious for work which machine can do so cheaply and well."

You will find this monogram of the General Electric Company on many devices that take the drudgery out of housework. Look at it closely and remember the letters G-E. They are symbol of serviceethe initials of a frind.

GENERAL ELECTRIC

**Fig. 10.4** Buyer-user separation in advertising. Source: Horst Kliemann, Wie und Wo erfasse ich Käuferschichten? Berlin/Leipzig 1928, 55

using goods beyond their physical characteristics to socio-psychological attributes.[119]

(4) When suppliers discover that their products or services are not sought after, they might react by aggressive selling techniques, frequently ignoring long-term relationships with customers.[120] When this approach fails, more intelligent

[119] Much later, products were characterized as "bundles of characteristics", be these objectively measured of perceived: Kevin Lancaster, *Consumer Demand. A New Approach*, New York/London 1971; Klaus Brockhoff, *Produktpolitik,* 1st ed., Stuttgart/New York 1981. This laid ground for models of optimal product positioning in attribute spaces.

[120] Philip Kotler/Gary Armstrong, *Principles of Marketing,* 1st ed., Englewood Cliffs/NJ 1980.

approaches are required. In the USA, the discussion on customer orientation gained great importance following the publication of "*Marketing*" in 1940.[121] One powerful instrument can be product differentiation. A systematic approach classified its alternatives: market penetration (existing products in existing markets), market development (existing products for new markets), product development (new products for existing markets), and diversification (new products for new markets).[122] This approach could be even more attractive if applied to different segments of customers.[123] Specific characteristics of goods and services may require different sales policies. From product differences that appear more immediately obvious, such as those between capital and consumer goods or tangible goods and services, attention was increasingly shifting to the aspect of the risks for the buyer associated with the purchase, which ultimately leads to the distinction between search, experience, and credence goods.[124]

Substantial interest was vested in the diffusion of new products. It started with simple time-dependent models,[125] which, however, due to their concave-convex structure, posed substantial problems of empirical estimation.[126] An advanced model included customer segmentation according to the adoption behavior of two customer groups.[127] Because this type of model could not meet the additivity condition (market shares in the different segments should add to 100%), another model was developed that could at the same time incorporate various marketing instruments to influence the course of diffusion.[128] The model is highly versatile in that it can accommodate more than two customer segments, and it can be expanded to support technology management strategies. Models for consumer goods with multiple purchases by the same customer were also developed. Such models served to simulate

[121] R. S. Alexander, et al., *Marketing,* New York/NY 1940.

[122] H. Igor Ansoff, A Model for Diversification, *Management Science,* 1958, Vol. 4, 392–414.

[123] Wendell R. Smith, Product differentiation and market segmentation as alternative marketing strategies, *Journal of Marketing,* 1956, Vol. 21, 3/63–65.

[124] Melvin T. Copeland, *Principles of Merchandising,* Chicago/IL 1924; Phillip J. Nelson, Information and Consumer Behavior, *Journal of Political Economy,* 1970, Vol. 78, 729–754; Hans Knoblich, Die Typologie der Waren als Kernstück einer wirtschaftlichen Warenlehre, *Zeitschrift für betriebswirtschaftliche Forschung,* 1965, Vol. 17 n.s., 686–712.

[125] William Cox, Product Life Cycles as Marketing Models, *Journal of Business,* 1967, Vol. 40, 375–384. E. J. Green, Planning for Profits and Growth. In: Stanford Research Institute, *Planning for Industrial Growth,* Menlo Park 1963; David Clifford, jr., Managing the Product Life Cycle, *McKinsey Quarterly,* Spring 1965, Vol. I.

[126] Klaus Brockhoff, A Test for the Product Life Model, *Econometrica,* 1967, Vol. 35, 472–484.

[127] Frank M. Bass, A New Product Growth Model for Consumer Durables, *Management Science,* 1969, Vol. 15, 215–227.

[128] Helmut Schmalen, *Marketing-Mix für neuartige Gebrauchsgüter,* Wiesbaden 1979. Helmut Schmalen, A Behavior-Oriented Marketing-Mix Decision Model for the Introduction of New Consumer Durables. In: Peter Hammann/Bruno Tietz, eds., *Proceedings of the Annual Meeting of the European Academy for Advanced Research in Marketing*, Saarbrücken 1977.

marketing decisions and their multi-period consequences. Moreover, for the multi-product firm, product line decisions were modeled.[129]

(5) New product management is just one marketing instrument besides others. We have already referred to pricing in preceding chapters (4.3, 9.1.3, 9.3.2 (3a)), such as to skip this. Advertising was also mentioned before. However, such instruments were gradually systematized, and it became clear that they needed to be looked at simultaneously. A unified marketing approach is mandatory beyond the analyses of instruments one by one. This gave birth to what has been called the "managerial school" of marketing. It is often related to the publication of a paper by *Wroe Alderson* in 1957.[130] Sales policy instruments (sales method, pricing policy, product design, advertising)[131] or marketing instruments, often called the 4P's (product, place (location), price, promotion)[132] were focused. First attempts at their joint optimization relied on marginal analysis, later Operations Research was applied. The term "marketing mix" arrived.[133] This concept was strongly promoted by *Philip Kotler* (Fig. 10.5).

Better market information is needed to apply and optimize the use of the marketing instruments. Over time, this has developed from fairly simple socio-demographic statistics—the use of the term "observation" is typical in one of the leading texts[134]- to sophisticated behavioral research, also supported by experiments.[135] Technical progress plays a major role here, which can be well observed in recent years in automatically collecting user data from electronic media.

By that time at the latest, the concept of marketing was described as "*not only much broader than selling, it is not a specialized activity at all. It is the whole business seen from the point of view of its final result, that is, from the customer's point of view. Concern and responsibility for marketing must therefore permeate all areas of the enterprise.*"[136] In other terms: the bottleneck function of the firm had shifted from production to marketing.

(6) With the beginning of the 1970s (and thus outside the period of observation chosen here), several distinguishable currents of marketing research and theory then developed on a broad front:

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[129] Glen H. Urban, A Mathematical Modeling Approach to Product Line Decisions, *Journal of Marketing*, 1969, Vol. 6, 40–47.

[130] Wroe Alderson, *Marketing Behavior and Executive Action. A Functionalist Approach to Marketing Theory*, Homewood/IL.1957.

[131] Erich Gutenberg, *Grundlagen der Betriebswirtschaftslehre, Zweiter Band. Der Absatz,* Berlin/Göttingen/Heidelberg 1955, 89 et seq.

[132] E. Jerome McCarthy, *Basic Marketing: A Managerial Approach,* Homewood/IL 1960. As of today, even 7P's are considered.

[133] Neil H. Borden, The Concept of Marketing Mix, *Journal of Marketing Research,* 1964, Vol. 4, 2/2–7.

[134] Erich Schäfer, *Grundlagen der Marktbeobachtung,* Nürnberg (Nuremberg) 1928.

[135] James F. Engel/David T. Kollat/Roger D. Blackwell, *Consumer Analysis. A New Approach,* New York 1968; Werner Kroeber-Riel, *Konsumentenverhalten,* 1st ed., München (Munich) 1975.

[136] Peter F. Drucker, *The Practice of Management,* Melbourne 1955, 31.

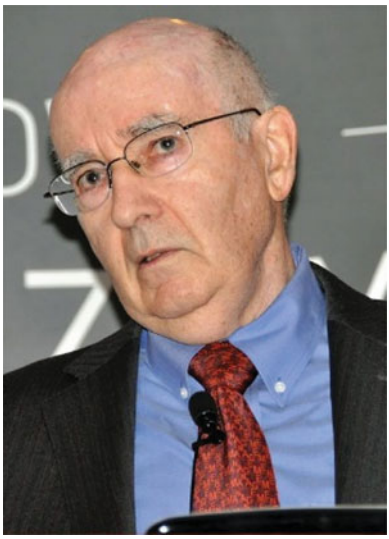

**Fig. 10.5** Philip Kotler (2017). Source: Jack11 Poland; Kotler – DSC 0510.jpg

- Quantitative research that seeks to optimize marketing decisions based on Operations Research techniques. Multiple objectives can also be considered in the approach.[137]
- Formulation and test of multivariable cause-effect models that are in principle manageable, which means that they offer possibilities for management to influence the effect.
- Simulation models of the "industrial dynamics"-type are developed.[138] However, even a model for a single business unit can become so large and difficult to update that it is rejected as being "much too complicated" and even "without meaning."[139]
- Marketing research and theory-oriented models incorporating hitherto disregarded empirical techniques, for example, from econometrics and psychology (factor analysis, cluster analysis, conjoint analysis, multidimensional scaling, etc.) and being fundamentally characterized by multivariate relationships.

[137] Lutz Hildebrand/Udo Wagner, Entwicklungslinien der quantitativen Marketingforschung im deutschsprachigen Raum. In: Wenzel Matiaske/Dieter Sadowski, *Ideengeschichte der BWL II,* Wiesbaden 2022 (in preparation).

[138] Jay W. Forrester, *Industrial Dynamics,* New York/London 1961.

[139] David B. Montgomery, Perspektiven der Entwicklung von computergestützten Marketing-Informationssystemen und Marketing-Modellen in den 70er Jahren. In: Hans Robert Hansen, ed., *Computergestützte Marketing-Planung*, München (Munich) 1974, 707–726, here 707.

- Research into consumer behavior with the aid of medical-technical devices (electrodermal measurements, eye-tracking, and most recently also MRI recordings of brain activity), extending from the perception of advertising further to studies of addictive behavior, selfishness versus altruism, etc.
- Consumer protection has become an ever-increasing activity.[140]

The development of marketing offers an instructive example of scientific developments interacting with societal, economic, and technological contextual conditions.

### *10.2.4 Capital Budgeting and Finance*

(1) An investment project is characterized by a cash flow that starts with an expenditure, followed by receipts over a period of time, and possibly a positive (sale of the used item) or negative final payment (demolition). A project of external financing starts with a receipt and continues with expenditures to cover interest and re-payments. For a long time, investment projects and finance projects were not considered simultaneously but separately. Capital budgeting was treated on one side and finance on the other.

(2) Whether an investment project contributes to the overall economic objective of a firm depends on its valuation. Valuations should also enable the investor to choose between alternative projects by preferring the one with its highest contribution to the objective. Two important problems are connected with the valuation: (a) The value of a project should be cast into a single figure, and (b) the fact that future payments are not certain should be reflected. Although we noticed that uncertainty was introduced into the literature for merchants already in the eighteenth century (Sect. 3.3, (3)), it was not incorporated into the valuation of projects except by assuming expected values of the payments generated and gross "safety buffers" determined more or less subjectively added to expenditures or deducted from receipts.

(2a) Until the middle of the twentieth century, it was common to value investment projects one-by-one using so-called "static" methods. These were: a pay-back period that measures the time to amortization of the initial outlay, annuity, or cost comparisons associated with the project. Neither of these methods reflects the distribution of the payments over time. For instance, the pay-back method disregards all possible payments beyond the time period when the expected receipts will have covered the expenditures that occur to this point. For this reason alone, static methods of project valuation were discarded. Two "dynamic" methods of project valuation were favored instead: internal rate of return (IRR) and net present value (NPV). The

[140] Andrea Gröppel-Klein, Geschichte der BWL - Die Konsumentenverhaltensforschung in Marketing und Betriebswirtschaftslehre. In: Wenzel Matiaske/Dieter Sadowski, *Ideengeschichte der BWL II,* Wiesbaden 2022 (in preparation).

mathematics of geometric series that underlie these methods had been developed by *Leibniz* (Sect. 3.2) and *Newton.* We take no position in the bitter fight who was first on geometric series.

The internal rate of return is calculated by finding the interest rate that equates the expenditures and receipts of a project to which it is applied. In other words, an interest rate is calculated that lets NPV equate zero. Unfortunately, this causes mathematical problems because, depending on the number of planning periods *n,* an *n*-dimensional equation has to be solved. Even for $n = 2$, this may produce two solutions, and even more solutions are generated as the number of periods increases. If the final investment project payment is negative, no solution might be found.

The net present value considers an identical stream of payments but assumes a given interest rate to discount all payments to the decision point. However, except for perfect capital markets, there is no natural choice for the interest rate. Theories on interest rates have a long history, which is masterly summarized and reviewed by the Austrian *Eugen von Böhm-Bawerk* (1851–1914). His "positive theory of interest" explains that the interest rate reflects the fact of a preference for present-day availability of a good over its future availability; the marginal utility of future goods declines for technical and psychological reasons.[141] *Irving Fisher* (1867–1947) broadens these concepts to include actual versus future opportunities to earn an income and future uncertainties, for instance resulting from political actions. He also defines the NPV.[142]

The NPV calculation is more straightforward than the IRR. Because it is unclear how to determine the interest rate applied in the procedure one might think of a marginal interest rate derived from the last project needed to finance the investment project; however, this is yet unknown when the calculation starts. Nevertheless, NPV is moderated by modeling taxes, governmental subsidies, inflation, etc., to make it more realistic.

Ordering investment projects by IRR and NPV does not necessarily lead to identical rankings. The reason is that all intermediate net returns and re-investments of the project value after its lifetime are implicitly evaluated at the IRR in the one case and the chosen discount rate in the other case. This implicit assumption is necessary because it is the only way to neutralize the financial project environment.[143] Furthermore, finance projects and investment projects may not be independent of each other, and both types of projects may have interdependencies

[141] Eugen von Böhm-Bawerk, *Kapital und Kapitalzins. Erste Abtheilung: Geschichte und Kritik der Kapitalzins-Theorien*, Innsbruck 1884; *Kapital und Kapitalzins. Zweite Abtheilung: Positive Theorie des Kapitals*, Innsbruck 1889.

[142] Irving Fisher, *The Rate of Interest. Its Nature, Determination and Relation to Economic Phenomena,* New York 1907.

[143] Erich Schneider, *Wirtschaftlichkeitsrechnung. Theorie der Investition,* Tübingen 1951 (3rd ed., Tübingen 1961). Wolfgang Lücke, Bemerkungen zum Investitionstypus und zum Problem der Zwischenanlage, in: Rolf Schwinn, ed., *Beiträge zur Unternehmensführung und Unternehmensforschung, Festschrift zum 70. Geburtstag von W. R. Riester,* Würzburg/Wien 1972, pp. 165–184.

among themselves. The first problem could be solved by ordering both types of projects by their interest rate or their net present value, where the investment projects define the demand for capital and the finance projects represent its supply. Equating demand and supply "curves" determines the program to be realized.[144] The second problem can be solved by integrating both types of projects into a program planning procedure.[145] This type of procedure became feasible with the advent of the Simplex Method for the solution of Linear Programs. The French electric power industry presented a solution for the one-period case early on.[146] With the availability of software and rising computer power, it was hoped that soon multi-period total plans for a company might became feasible. However, the enormous amount of data needed, and the cost of adaptation to frequent changes made it clear that such ideas were too ambitious for practical use. Even breaking down the problem to coordinating plans of business units faced motivational and agency problems because of imperfect information structures (hidden information).[147]

Based on the analysis of multi-period decision trees and operationalized by dynamic programming procedures[148] ,it became evident that the simple (additive) NPV of a series of investment decisions was incorrect. Investment or financing alternatives looked at from the point of view of a later period and that had no positive NPV at the decision point should be eliminated altogether, rather than being included in a solution with their respective discounted expected values. This so-called "flexible," multi-period planning of investments[149] foreshadowed the introduction of option pricing in the early 1970s.[150]

Determining the "correct" discount rate was a problem initially overlooked in program optimization. It soon became visible that the shadow price of capital provided an interest rate as part of the optimal solution of a program. However,

[144] Joel Dean, *Capital Budgeting,* 4th ed., New York, NY 1959; Adolf Moxter, Die Bestimmung des Kalkulationszinsfußes bei Investitionsentscheidungen, *Zeitschrift für handelswissenschaftliche Forschung,* 1961, Vol. 13 n.s., 186–200.

[145] Horst Albach, *Investition und Liquidität. Die Planung des optimalen Investitionsbudgets,* Wiesbaden 1962.

[146] Pierre Massé/Robert Gibrat, Application of Linear Programming to Investments in the Electric Power Industry, *Management Science,* 1956, Vol. 3, 149–166.

[147] Horst Albach, Die Koordination der Planung im Großunternehmen. In: *Rationale Wirtschaftspolitik und Planung in der Wirtschaft von heute, Schriften des Vereins für Socialpolitik,* Vol. 45, N.S., Berlin 1967, 332–43.

[148] Richard E. Bellman, *Dynamic Programming,* Princeton/NJ 1967.

[149] Herbert Hax/Helmut Laux, Flexible Planung-Verfahrensregeln und Entscheidungsmodelle für die Planung bei Ungewißheit, *Zeitschrift für betriebswirtschaftliche Forschung,* 1972, Vol. 24, 318–340. Another formulation calls for maximizing an annually constant withdrawal: Herbert Hax, Investitions- und Finanzplanung mit Hilfe der linearen Programmierung, *Zeitschrift für betriebswirtschaftliche Forschung,* 1964, Vol. 16, 430–446.

[150] Fischer Black/Myron S. Scholes, The Pricing of Options and Corporate Liabilities, *Journal of Political Economy,* 1973, Vol. 81, 637–654.

this rate could not be known at the start of the planning process.[151] Some hope that this vicious circle could be avoided by optimizing the horizon value of the investment program instead of the NPV, and by using expected interest rates for all planning periods and financing instruments (including inter-period transfers of extra cash) was destroyed: Both methods are identical in principle.[152]

However, two important insights were gained from the programming methods: Investment projects should be evaluated in the context of investment programs; investment and financing should be optimized simultaneously as "two sides of the same coin."

(2b) Several approaches to considering uncertainty emerged. As mentioned in Sect. 3.3, (3), probability theory had been developed in the eighteenth century and was recommended to businessmen in merchant books. However, frequential probabilities that assume identical repetition of actions had no real significance for business in an ever-changing world. *Frank H. Knight* (1885–1972) introduced the name of "risk" for this case. Furthermore, he considered "objective uncertainty," when no probabilities can be assigned to future events, and "subjective uncertainty," when subjective probabilities can be attributed to future events.[153] Objective uncertainty was modeled by game theory,[154] both for cases of the self-interested, rationally acting counterparts of the decision-maker[155] and the neutral "nature" as the other player.[156] Games could have one stage or be repeated through multiple stages. Although substantial interest was vested in game theory, it did not find broad application in real business decisions.

This leaves us with subjective probabilities that are used to calculate the expected value of the NPV of a single project or to maximize the NPV of an investment program. Whether to capture the uncertainty via the interest rate or via the streams of payments associated with the projects was discussed controversially. However, soon it became clear that the expected value $\mu$ was insufficient because it ignored the variance $\sigma$ (or other parameters of the distribution of the uncertain values; variants of

[151] Günter Franke/Helmut Laux, Die Ermittlung der Kalkulationszinsfüße für investitionstheoretische Partialmodelle, *Zeitschrift für betriebswirtschaftliche Forschung,* 1968, Vol. 20, 740–759.

[152] H. Martin Weingartner, *Mathematical Programming and the Analysis of Capital Budgeting Problems,* Englewood Cliffs, N. J. 1963 (2nd ed., Chicago IL 1967); Veikko Jääskeläinen, *Optimal Financing and Tax Policy of the Corporation,* Helsinki 1966; Ulrich Blumentrath, *Investitions- und Finanzplanung mit dem Ziel der Endwertmaximierung,* Wiesbaden 1969; Lutz Haegert, *Der Einfluss der Steuern auf das optimale Investitions- und Finanzierungsprogramm,* Wiesbaden 1971.

[153] Frank H. Knight, Risk, Uncertainty, and Profit, New York 1965 (1st ed., 1921).

[154] John (Janoš) von Neumann/Oskar Morgenstern, Theory of Games and Economic Behavior, Princeton/NJ 1944.

[155] R. Duncan Luce/Howard Raiffa, *Games and Decisions. Introduction and Critical Survey,* New York 1957.

[156] John W. Milnor, Games against Nature. In: Robert Thrall, ed., *Decision Processes*, New York 1954.

models using μ and σ were accordingly called μ-σ-models). Consequently, four approaches to respond to this problem were developed:

- *Harry Markowitz* suggested a non-linear planning problem that guarantees "optimal portfolio selection." It has an objective function maximizing the expected NPV of the projects and one constraint that limits expenditures and another one constraint limiting the variance-covariance structure of the selected financial assets by a maximum value; this maximum tolerated variance reflects the risk propensity of the investor.[157] The optimum solution is a diversified portfolio of assets.
- *Abraham Charnes and William W. Cooper* suggested that a buffer be calculated that serves as a safety equivalent in securing financial equality; the calculation of the buffer depends on the variance-covariance matrix of the projects.[158] This matrix is multiplied by a parameter that reflects the acceptable risk propensity of the investor.
- *David Bendel Hertz* suggested simulations of the uncertain parameters assigned to the variables, such as the NPV of individual projects. After establishing an assumption on the distribution of these parameters, a draw from the distribution for each parameter is a realization of the problem that is then solved. These drawings are repeated many times. The resulting optimum values of the objective function establish its distribution and a frequency distribution of the variables.[159] The investor would have to choose from the distribution functions.
- Based on the idea of "critical values" that could decide on the acceptability of projects,[160] it was suggested to carry out "parametric programming." This permits a sensitivity analysis of the investment program.[161] The calculations determine ranges within which planning parameters may vary without altering the investment program or a ranking order of investment projects.

A third major insight developed: Uncertainty is modeled by alternative, but principally equivalent approaches. These approaches to consider uncertainty became operational only after respective software for non-linear programming or simulations and computer capacity were available.

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[157] *Harry Markowitz, Portfolio Selection, Journal of Finance, Vol. 7, 1952, 77–92; Harry Markowitz, Portfolio* Selection, Cowles Foundation Monographs, New York 1959.

[158] Abraham Charnes/William W. Cooper, Chance-Constrained Programming, *Management Science,* 1959, Vol. 6, 73–79; Frederik S. Hillier, Chance-Constrained Programming with 0–1 or Bounded Continuous Variables, *Management Science,* 1967, Vol. 14, 34–56.

[159] David Bendel Hertz, Risk Analysis in Capital Investment, *Harvard Business Review,* 1964, Vol. 42, 95–106; Richard F. Hespos/Paul A. Strassman, Stochastic Decision Trees for the Analysis of Investment Decisions, *Management Science,* 1965, Vol. 11, B-244-B-259.

[160] Wolfgang Kilger, Kritische Werte in der Investitionsrechnung, *Zeitschrift für Betriebswirtschaft,* 1965, Vol. 35, 338–353.

[161] Werner Dinkelbach, *Sensitivitätsanalyse und parametrische Programmierung*, Berlin et al. 1969.

(3) During the first half of the twentieth century, "finance" was concerned with describing the financial instruments available to firms and procedures to calculate the amount of financial assets necessary to secure the operations. Both considerations were laid down in financial plans.[162] The overarching task of finance in market economies was to secure a balance of receipts and expenditures at any moment. Indications of meeting this constraint were derived from adhering to "golden rules of finance." Golden rules required observing certain relations of equity to total capital ("vertical rules") or of capital to assets ("horizontal rules").[163] Theoretical analyses showed later that these rules resulted in less than golden financial results but proved to be rather expensive in terms of foregoing NPV.[164] In principle, these procedures do not differ much from those described in the earlier merchant literature. If a selection from a number of financial opportunities was feasible, it was based on cost of capital or annuities. Calculating the total cost of capital was not trivial,[165] because of the interdependencies of investments and financial alternatives, indeterminate financial requirements because of lacking hierarchical plans, and negotiable financing conditions not least with respect to the risks involved.

The pragmatic rules suggest that varying the share of equity capital makes a difference in financing a firm. Larger and more perfect financial markets in the USA might have spurred a theory of finance. Under the assumption of perfect capital markets and without taxes, the assumption of the value of a firm depending on structuring its financial capital is challenged by the *Modigliani-Miller* theorem. The authors showed that the firm's value was indifferent to the share of equity capital under the modeled conditions.[166] However, the existence of taxes,[167] less perfect capital markets and insolvency risks rising with decreasing shares of equity capital questioned the theorem. Should the cost of equity capital be higher than the cost of other sources of capital, these will be preferred. This preference could lead to accepting higher risk by management, even when the less well-informed owners of equity capital would prefer lower risk levels. This points at interrelationships between financing strategies and corporate governance.[168]

Another important issue, valuation of assets under risk, can be approached from the point of view of the financial market instead of starting from the individual projects as discussed above. This view has generated a large flow of contributions,

[162] Eugen Schmalenbach, *Finanzierungen,* Leipzig 1915.

[163] Georg Obst, *Das Bankgeschäft,* Stuttgart 1900.

[164] Horst Albach, Finanzierungsregeln und Kapitalstruktur der Unternehmung. In: F. W. Christians, ed., *Finanzierungshandbuch,* Wiesbaden 1988, 69–83.

[165] E. Solomon, Measuring the Company's Cost of Capital, *Journal of Business,* 1955, Vol. 28, 240–252.

[166] Frank Modigliani/M. H. Miller, The cost of capital, corporate finance and the theory of investment, *American Economic Review,* 1958, Vol. 48, 261–297.

[167] Frank Modigliani/M. H. Miller, Corporate Income Taxes and the Cost of Capital, *American Economic Review,* 1963, Vol. 53, 433–443.

[168] M. C. Jensen/W. H. Meckling, Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure, *Journal of Financial Economics,* 1976, Vol. 3, 305–360.

which show, in essence, that risk can be incorporated in the interest rate to be applied by a firm. The interest can be decomposed into one part reflecting the market rate of interest (including market risk or systematic risk, which can be diversified away) and a second part reflecting the specific risks of the investment.[169] This is the non-diversifiable risk, which is named beta risk. Beta measured at a reference market is equaled to 1; firm-specific risks are expressed relative to this standard. In this sense, risk evaluation has been made objective. The model belongs to the class of μ-σ-models. It assumes zero transaction costs. The empirical determination of the risk premiums remains a problem triggering heated debates and questions regarding the validity of the model.

The hypothesis of efficient capital markets was strongly defended by *Eugene Fama.*[170] It assumes that the capital markets reflect all information that might influence the value of an asset instantaneously. Therefore, it is impossible to beat the market, except for insider knowledge. Empirical results from testing the hypothesis are mixed. Much later, this theory gave rise to a strong demand for Exchange Traded Funds (ETFs) that mirror a specific market instead of managed funds.

(4) The μ-σ-models mostly assume symmetric normal distributions and rational behavior of the decision-makers. This assumption is called into question after experimental research showed that the valuation of negative results does not follow the same utility curve as of positive results and that the wording ("framing") of decision alternatives has a strong impact on decisions.[171] The ideas are summarized under the name of "prospect theory." These findings gave rise to the new stream of behavioral finance that reaches much further than simply catching the risk propensity of an investor in a single parameter to be applied to the σ in the standard modes.

(5) Business administration in the post-war period broke away from the conventional concept of investment and financing as separate. Operations Research made it possible to consider both clearly linked. The market-based financial theory became dominant in this field.

It became an important question whether models should be developed to capture highly volatile behavior or whether decision-makers should and could be trained to make unbiased decisions.

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[169] William F. Sharpe, Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk, *Journal of Finance,* 1964, Vol. 19, 425–442; John Lintner, The Valuation of Risk Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets, *Review of Economics and Statistics,* 1965, Vol. 47, 13–37; Jan Mossin, Equilibrium in a Capital Asset Market, *Econometrica,* 1966, Vol. 34, 768–783. Earlier work by Jack L. Treynor was unpublished but referred to: Craig W. French, The Treynor Capital Asset Pricing Model, *Journal of Investment Management,* 2003, Vol. 1, 6–72. Referring back to Sect. 6.1, this is another illustration of the independent discovery of the model by the authors mentioned.

[170] Eugene Fama, Efficient Capital Markets. A Review of Theory and Empirical Work, *The Journal of Finance,* 1970, Vol. 25, 383–417.

[171] Daniel Kahneman/Amos Tversky, An Analysis of Decisions under Risk, *Econometrica,* Vol. 47, 1979, 63–291; Daniel Kahneman/Steward Paul Slovic/Amos Tversky, *Judgment under Uncertainty: Heuristics and Biases*, Cambridge/MA 1999.

As observed above for the development of compound interest by *Leibniz*, we find again that important advances in business administration require the merging of intellect or genius, rules for processing or software, and the hardware to apply it at a realistic scale.

## 10.3 Cross-functional Specializations

### *10.3.1 Research and Innovation Management*[172]

(1) Research and development is a valuable resource to promote the process of technological invention. The management of research and development (R&D) could thus be considered as a functional specialization within business administration. It is demonstrated that more functional areas are "necessary and complementary" to promote innovation.[173] R&D activities may lead to inventions, which might be protected by intellectual property rights or by secrecy.[174] In general (disregarding markets for inventions), inventions must be transformed into successful innovations to generate receipts. These receipts motivate the inventive and innovative processes,[175] and the new knowledge is the basis for further "productive processes."[176] This requires investments in production processes, organization, and marketing.[177] A basic assumption of modern business administration is that innovations, if adequately managed, are strong drivers for growth. Traditionally, there was no market for inventions. Today, such markets exist, and inventive and innovative activities may even be performed by different organizations.[178]

R&D represents at least two types of activities. Development aims at inventing or improving products, processes, organizations, etc., with a clear focus and less uncertainty than research. Research is further differentiated into basic and applied

[172] Parts of this section are based on: Klaus Brockhoff, The Emergence of Technology and Innovation Management, *Technology and Innovation*, 2017, Vol. 19, 461–480.

[173] Frederic M. Scherer, Invention and Innovation in the Watt Steam Engine Venture, *Technology and Culture,* Vol. 6, 2/165–187, here 186.

[174] Jean-Baptiste Say, *Traité d'économie politique ou simple exposition de la manière dont se forment, se distribuent, et se consomment les richesses,* Vol. 1, Paris 1803, 143.

[175] Jacob Schmookler, *Invention and Economic Growth*, Cambridge/MA 1966.

[176] Friedrich List, *Das nationale System der politischen Oekonomie,* Stuttgart/Tübingen 1841, 214.

[177] Klaus Brockhoff, *Schnittstellen-Management. Abstimmungsprobleme zwischen Marketing und Forschung und Entwicklung,* Stuttgart 1987; William E. Souder, Promoting an Effective R&D/Marketing Interface, *Research Management,* 1980, July/10–15; William E. Souder, Disharmony between R&D and Marketing, *Industrial Marketing Management,* 1981, Vol. 10, 67–73.

[178] Joseph A. Schumpeter, *Business Cycles. A Theoretical, Historical and Statistical Analysis of the Capitalist Process,* New York/London 1939; B. S. Keirstead, *The Theory of Economic Change,* Toronto 1948.

research[179] (or use-inspired research, as called by *Stokes*[180] in Sect. 6.1); the one has an innovative (and in industry also commercial) application as a goal, which is lacking in the other. However, *Alfred Marshall* (1842–1924) had already recommended that researchers in industry "*should take some account of the work of . . . laboratories, whose researchers are specialized on the attainment of particular practical ends*."[181] Most of industrial R&D is, in fact, development.

Invention processes can cause interface problems between R and D functions, mainly if performed separately and at different geographical locations.[182] Because of these characteristics, the partitioning of an R&D budget into funds for research and development activities can hardly be based on rational considerations. Criteria can be industry averages or the bargaining power of researchers after research success, as demonstrated by *Carothers* at DuPont after the nylon invention that had originated from his central research laboratory.[183] Relatively smaller budgets for research can have higher development budgets as a consequence, because then development is less well scientifically based and more tinkering is necessary to achieve an invention.[184]

While it is often observed that R&D is established in an existing company, a research-based invention might also initiate a company. This can happen by academic researchers making an invention, such as *Linde* with the refrigerator[185] or *Shockley* with the transistor.[186]

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[179] This differentiation by three types of knowledge generation was proposed by Alexis de Tocqueville, *De la Démocratie en Amérique*, 2nd part, Paris 1840. I/Chapter 10 is entitled: "Why Americans are more concerned with Application of the Sciences than with their Theory." The author warns against separating the different types of research and development in the long run. The author also thinks that in these days the human spirit should be affixed to theory, from where he runs towards practice "by himself." Considering the basics is better than looking at small details with subordinate consequences. De Tocqueville is a forerunner of the linear model of scientific dynamics, Sect. 6.2.

[180] Donald E. Stokes, *Pasteur's Quadrant. Basic Science and Technological Innovation,* Washington/D.C. 1997.

[181] Alfred Marshall, *Industry and Trade. A Study of Industrial Technique and Business Organization; and their influences on various classes and nations,* 3rd ed., London 1927, 100 et seq.

[182] Albert H. Rubenstein, Liaison Relations in Research and Development, *IRE Transactions on Engineering Management,* 1957, Vol. EM-4, June/72–78; Augustus Braun Kinzel, Basic Research in Industry. In: National Science Foundation, ed., *Proceedings of a Conference on Academic and Industrial Basic Research*, Washington/D.C. 1961, 15 et seq.; J. E Goldman/L. M. McKenzie, Management of Interface Problems between Basic and Applied Research. In: Marshall C. Yovits et al., edts., *Research Program Effectiveness,* New York 1966, 1–12;

[183] David A. Hounshell/John Kenly Smith, jr., *Science and Corporate Strategy: research and development at DuPont 1908 to 1980,* Cambridge/MA 1989.

[184] Gerhard Schätzle, *Forschung und Entwicklung als unternehmerische Aufgabe,* Köln (Cologne)/Opladen 1965, 29 et seq.

[185] Carl Linde, Die wirtschaftliche Entwicklung des gesamten Unternehmens. In: *50 Jahre Kältetechnik 1879–1929. Geschichte der Gesellschaft für Lindes Eismaschinen AG,* Wiesbaden 1929.

[186] Hans Queisser, *Kristallene Krisen. Mikroelektronik – Wege der Forschung, Kampf um Märkte,* 2nd ed., München (Munich)/Zurich 1987.

(2) The antecedents of the ideas on R&D as a driver of growth date back to the late seventeenth century. As reported in Sect. 3.2 (2), *Jacques Savary* had suggested that three types of business would require different strategies for success: the head-on competition on markets with products well-known, the imitation of something not yet known in the home market but abroad, and the innovation that generates a new type of market.[187] At this early stage, imitation is already recognized as an alternative to innovation. Shortly after that, various types of manufacturing organizations were presented for generating inventions.[188] Furthermore, personal and philosophical conditions that support inventive activities were taught.[189] *Jean Baptiste Say* offered the insight that R&D performed by companies (not alone states) should be undertaken only if its return is higher than that of an investment with certainty, and is a far better use of resources than spending the same money on consumption. A major condition for this thesis is the existence of patent laws to protect the inventions, at least for a specific time.[190] It should be noted that R&D expenditures are considered an alternative type of consumption, which had as one consequence that it was considered an expense that cannot be added as an asset in the balance sheet. It took quite some time until R&D was regarded as an investment.[191] *John Stuart Mill* suggests incentives for "designers"[192] to spur developments. *Alfred Marshall* argued that cumulative technological progress would initiate increasing economies of scale, which together with a well-educated workforce and a banking system open to finance innovations initiates a continuous supremacy of a nation.[193]

However, what appears to be a straightforward process of generating an invention and presenting it to a market can fail badly. *Charles Babbage* in his "art of designing," offers two reasons for failure: the inventor has not studied whether there is a market for his innovation; the inventor has not studied rivaling technologies that might achieve a better result or the same result at a lower cost.[194]

(3) During the second half of the nineteenth century, inventive activities became more research-based and continuous. The research base was broadened by corporate R&D laboratories and cooperation with science departments of universities. *Werner*

[187] Jacques Savary, *Le parfait négociant ou instruction générale pour ce qui regarde le commerce des marchandises de France et des pays étrangers . . .,* Vol. 2, Paris 1675, 78 et seq.

[188] Johann Beckmann, *Anleitung zur Technologie, oder zur Kenntniß der Handwerke, Fabriken, und Manufacturen*, Göttingen 1727.

[189] Alexander Gottlieb Baumgarten, *Aestethica. Traiecti cis viadrum*, 1750 (vol. I) – 1758 (Vol. II).

[190] Jean-Baptiste Say, *Traité d'économie politique ou simple exposition de la manière dont se forment, se distribuent, et se consomment les richesses,* Vol. 1, Paris 1803, 144 et seq.

[191] Konrad Mellerowicz, *Forschungs- und Entwicklungstätigkeit als betriebswirtschaftliches Problem*, Freiburg 1958, 70 et seq., 294.

[192] John Stuart Mill, *Principles of Political Economy with some of their applications to social philosophy,* 7th ed., London 1848.

[193] Alfred Marshall, *Industry and Trade. A Study of Industrial Technique and Business Organization; and their influences on various classes and nations,* 3rd ed., London 1927, 62 et seq.

[194] Charles Babbage, *On the Economy of Machinery and Manufactures,* London 1832, 206, 211 et seq.

*von Siemens,* the co-founder of Siemens Corp., observed: "*. . .a major reason for the fast growth of our factories is the fact that our products in their great majority result from our own inventions. Although patents did not protect these in most cases, they offered an advantage over those products of our competitors; usually, this lasted long enough until we could develop further improvements*."[195] A "more methodological" approach to R&D was considered necessary in the lamp industry to find "important discoveries."[196] *Thomas A. Edison* demanded a continuous stream of inventions: "*a minor invention every ten days and a big thing every six months or so*."[197] Large companies initiated R&D laboratories to generate this continuous stream of inventions and respond to international and national competitive pressures.[198]

Corporate laboratories could serve four purposes: to reduce the dependence on outside inventions and innovations; to shape the stream of proprietary inventions as required by corporate strategy as far as uncertainties of the inventive and innovative processes permit; to accumulate proprietary knowledge to be used to barter for external knowledge; to perform research as a basis for development or preparation for entry into totally new technologies or markets. *Joseph A. Schumpeter* made it clear that large companies, in particular, could constantly fight against potential economic equilibria by "creative destruction" or introducing "new combinations,"[199] which he later called innovations.[200] He was well aware of the opposition innovations face in the markets, particularly if conventional norms or thinking patterns are attacked. The diffusion processes describe how innovations find acceptance in a community of potential buyers. Diffusion is neither guaranteed nor is it simply time-dependent. In a first generation of diffusion models, it is assumed that a relatively small group of so-called "innovative buyers" of durables is ready to adopt the innovation immediately. By using the innovation, they may "infect" others who then follow their example.[201] However, it was soon discovered that more consumer segments need to be considered, that the whole marketing mix could influence the buying behavior, imitation might threaten the success of an innovation, and diffusion of non-durable products would also have to be modeled (Sect. 10.2.3).[202] While

[195] Werner von Siemens, *Lebenserinnerungen,* Berlin 1892 (17th ed., München (Munich) 1983, 324).

[196] A. Heerding, *The history of N. V. Philips Gloeilampenfabriken,* Cambridge/MA 1988.

[197] Matthew Josephson, *Edison: A Biography,* New York/NY 1959, 133 et seq.

[198] Leonard S. Reich, *The Making of American Industrial Research: science and business at GE and Bell, 1876–1926,* Cambridge/MA 1985; David A. Hounshell/John Kenly Smith, jr., *Science and Corporate Strategy: research and development at DuPont 1908 to 1980,* Cambridge/MA 1989.

[199] Joseph A. Schumpeter, *Theorie der wirtschaftlichen Entwicklung,* Berlin 1912.

[200] Joseph A. Schumpeter, The explanation of the business cycle, *Economica,* 1927, Vol. 21, 236–311.

[201] Everett M. Rogers, *Diffusion of Innovations,* New York 1962; Frank M. Bass, A new product growth model for consumer durables, *Management Science,* 1969, Vol. 15, 215–227.

[202] Helmut Schmalen, Optimal price and advertising strategies for new products, *Journal of Business Research,* 1982, Vol. 10, 17–30.

diffusion analysis exemplifies the interaction of R&D with marketing, similar interactions can be demonstrated with manufacturing. This is particularly true concerning process innovations.

As mentioned above (Sect. 5.2.4), *Schumpeter* thought that, in the long run, only large firms could finance R&D. Furthermore, some new technologies apparently favored economies of scale.[203] However, we know that both arguments hold in special cases only. Small start-ups can generate significant innovations, and technologies like the electric motor instead of the steam engine can be used economically at a small scale of production.

(4) While observing diffusion processes seems to indicate a contribution of R&D via inventions to protection by acquiring intellectual property rights, further to innovations, and finally to growth of firms, the effect of this multi-stage relation cannot be measured easily. It depends on efficient and effective management of these processes. The measurement methodology used here is based on the input factors of *Cobb-Douglas* production functions with labor (L), capital (C) of the current period t, and R&D (R) of the current and earlier periods ($t$-$v$; $v = 0,\ldots,V$) (modeled by distributed lag functions). The input factors may be further differentiated by observing basic applied research and development as separate. Outputs can be alternatively sales, patents, number of inventions, or productivity. The exponential parameters of the production function ($a_1$, $a_2$, $a_3$) are equivalent to marginal productivities of the related production factors:

$$\text{Output}_t = a_0 \text{L}_t^{a_1} \text{C}_t^{a_2} \prod_{v=0}^{V} \text{R}_{t-v}^{a_{3,v}}.$$

The production function approach offers more explanatory power than simple time-dependent technical progress functions. From 1970 onwards, many empirical studies were performed that unanimously demonstrate positive marginal returns to R&D productivities, which are generally higher than marginal productivities of other factors of production.[204] This result signals private underinvestment in R&D.

(5) Since the 1950s, the valuation of R&D projects as investments and the composition of R&D programs have become intensively discussed issues. First attempts at project valuation started with formulas developed in practice. In principle, these formulas attempted to measure a return to the expenditure of a project, which was mostly tied to expected sales of a future product emanating from the R&D project. These valuations did not observe the accurate time distribution of the expenditures and the future receipts. Additional constraints, such as standard

[203] Earlier, Charles Babbage argued similarly: Charles Babbage, *On the economy of Machinery and Manufactures,* London 1832, 185, quoting a Report of the Committee of the House of Commons on the Woolen Trade from 1806. The same Report refers to benefits resulting from a diffusion of innovations in manufacturing in an industry.

[204] Overviews of these studies can be found in: Klaus Brockhoff, *Forschung und Entwicklung. Planung und Kontrolle,* 5th. Ed., München (Munich) 1999, Sect. 6.2, 289 et seq. Zvi Griliches, edt., *R&D, Patents, and Productivity,* Chicago/Il./London 1984.

pay-back periods, led to unrealistically high implicit rates of return.[205] Projects could be rank-ordered according to their valuations. The introduction of scoring rules broadened the list of criteria to be observed in project selection and arrived at a utility value (score) for each project.[206] However, scoring rules were frequently constructed without observing the scale level at which the different criteria could be measured. Furthermore, the decision criteria were not always independent of each other, which implicitly creates a "super-weight" for criteria positively correlated. Project utilities could not be assigned a monetary value. Therefore, rather arbitrary results could be achieved, and the resulting ranking orders were often overruled by decisions that referred to higher-valued strategic principles. The rising interest in monetary project valuation consequently led to expected net present values (Sect. 10.2.4).[207] These approaches had arrived in practice around 1966.[208] A better representation of uncertainty beyond expected values of the cash flows was tried by employing different forms of sensitivity analyses. Decision trees capture the stepwise advance of a project through phases of development. These methodologies followed closely to general capital budgeting methods (Sect. 10.2.4 (2a)).

Specific R&D problems result from the availability of alternative approaches to an invention in addition to the inherent technical uncertainty. It is then of interest to find out whether and how many alternatives should be studied sequentially or in parallel. These approaches have obvious consequences for expected costs, use of R&D capacities, and time to completion. Solutions to such problems are of obvious relevance to firms in highly competitive markets and to societies when faced with massive threats (such as a virus pandemic that calls for medicines). Research has indicated that optimal solutions depend, among other variables, on the expected speed of learning from individual approaches or experiments.[209]

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[205] Review of these and more valuation procedures is presented in: Klaus Brockhoff, *Forschungsprojekte und Forschungsprogramme,* Wiesbaden 1969 (2nd ed., Wiesbaden 1973), Chap. 2; Albert H. Rubenstein, Studies of Project Selection Behavior in Industry. In: Burton V. Dean, ed., *Operations Research in Research and Development, Proceedings of a Conference at Case Institute of Technology,* New York/London 1963, 189–205.

[206] C. M. Mottley/R. D. Newton, The Selection of Projects for Industrial Research, *Operations Research,* 1959, Vol. 7, 740–751; C. J. Beattie/R. D. Reader, *Quantitative Management in R&D,* London 1971.

[207] David B. Hertz, *The Theory and Practice of Industrial Research,* New York et al. 1950; A. Hart, A Chart for Evaluating Product Research and Development Projects, *Operational Research Quarterly,* 1966, Vol. 17, 347–358.

[208] A form to calculate NPV is reproduced in: Klaus Brockhoff, *Forschungsprojekte und Forschungsprogramme,* Wiesbaden 1969, 72.

[209] Burt H. Klein, The Decision Making Problem in Development. In: National Bureau of Economic Research, *The Rate and Direction of Inventive Activity,* Princeton/NJ 1962, 477–497; Richard R. Nelson, Uncertainty, Learning, and the Uncertainty of Parallel Research and Development Efforts, *Review of Economics and Statistics,* 1962, Vol. 48, 351–364; Harry M. Weingartner, Capital Budgeting of Interrelated Projects, *Management Science,* 1966, Vol. 12, 485–516; Thomas A. Marschak/J. A. Yahav, The Sequential Selection of Approaches to a Task, *Management Science,* 1966, Vol. 12, 627–647 (Errata published later).

Assuming that expected NPVs for R&D projects were available, these served as input to program planning. Great hopes in the applicability of Operations Research methods initiated the development of such programs under uncertainty, including constraints to govern intertemporal and inter-projects relationships, avoiding partitioning of projects, and planning their financing across multi periods.[210] While the mathematics of these approaches could be mastered, the generation of the necessary data proved to be a stumbling stone to application. Further work tried to incorporate standardized cash flows into the models and applied simulation techniques for more realistic planning.

(6) Business administration was late to convince the R&D managers of its possible contributions to R&D management.[211] This had several reasons.

- A budget allocated to R&D was not accounted for and controlled in the same way as in other functional areas for a very long time.[212] At a time, when capital budgeting discussed project valuation by net present values, cost comparisons continued to be considered good valuation models in R&D.[213] This allowed "muddling through."
- R&D managers were mostly academics with educational backgrounds in natural sciences, medicine, or engineering. They had observed the management of academic research departments, which did not have to respond to market forces. Physics professor *Hans-Joachim Queisser* observes a case in the Silicon Valley, where a CEO with physics education "*perhaps based on a certain arrogance of his science education and the experience of earlier successes developed little understanding for bookkeeping and business routines.*"[214]
- The professional language of the R&D managers was substantially different from business administration. It is interesting to note that some influential pioneers of TIM were affiliated to engineering departments (*Albert H. Rubenstein* at Northwestern University, who focused as its editor the IEEE—Institute of Electrical and Electronics Engineers (formerly IRE—Institute of Radio Engineers)—Transactions on Engineering Management on R&D management articles) or schools (*Tom Allen, Don Marquis, Ed Roberts* at Massachusetts Institute of Technology). This affiliation may have made communication easier.

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[210] Klaus Brockhoff, *Forschungsprojekte und Forschungsprogramme,* Wiesbaden 1969, 201 et seq., 320 et seq.; Klaus Brockhoff, Some Problems and Solutions in the Selection of an R&D Portfolio. In: J. Lawrence, ed., *OR69, Proceedings of the Fifth International Conference on Operational Research,* London 1970, 765–773.

[211] Helmut Krauch, Resistance against Analysis and Planning in Research and Development, *Management Science,* 1966, Vol. 11, C-47 – C-58; Thomas J. Allen, A Survey into the R&D Evaluation and Control Procedures Currently Used in Industry, *The Journal of Industrial Economics,* 1969/1970, Vol. 13, 161–181.

[212] Probably the first study: Konrad Mellerowicz, *Forschungs- und Entwicklungstätigkeit als betriebswirtschaftliches Problem,* Freiburg 1958.

[213] Ibid., 100 et seq.

[214] Hans Queisser, *Kristallene Krisen. Mikroelektronik – Wege der Forschung, Kampf um Märkte,* 2nd ed., München (Munich)/Zurich 1987, *179.*

- Learning-by-doing was of little help because it did not leave the own peer group. In addition, outstanding researchers were frequently promoted to managerial positions without a business education, which might aggravate the problems mentioned.
- Sharing experiences with other R&D managers happened in associations, which at the beginning were closed to managers from other functional areas or business administration academics. This happened both at the "Industrial Research Institute" which started in 1938, and at the "European Industrial Research Association" founded in 1966.
- The level of autonomy enjoyed in academic research was often tried to be transferred to commercial environments, which could soon breed conflicts with economic objectives. This becomes apparent when R&D managers tend to favor research over development, which might lead to an abundance of inventions and a shortage of innovations.
- As in universities, many laboratories were organized functionally,[215] which could lead to communication and interface problems.

Thus, trying to connect R&D activities with business objectives or accounting systems was difficult for a long time.

(7) It was found that in many companies, research was technology-pushed and blind to external results. Based on tedious manual collection of patent data, it was argued that more successful inventive activities are demand-pulled instead of technology-pushed.[216] The acceptance of demand-pull innovation among industry leaders seems to depend partly on the economic conditions in their respective home countries. Using biographies, it is argued that US managers are more open to market imperatives in guiding their R&D programs than German managers.[217] General Motors' CEO *Alfred P. Sloan, jr.,* tells how frequently market forces determined strategic decisions on new product developments.[218] On the contrary, Volkswagen's CEO of the period immediately after World War II, *Heinz Nordhoff,* demonstrated his preference for a technology-push strategy,[219] which was perhaps acquired during his learning years before the War, when technology-push was a highly valued strategy.[220] This strategy promises greater technological advances, albeit with higher risks of failing during development and marketing. If applied to

[215] Konrad Mellerowicz, Die Organisation des Forschungs- und Entwicklungsbereichs. In: Klaus Agthe/E. Schnaufer, edts., *TFB-Taschenbuch Organisation*, Berlin/Baden-Baden 1961, 633–677.

[216] Jacob Schmookler, *Invention and Economic Growth,* Cambridge/MA 1966.

[217] Erich Frese, German managers'organizational know-how in the Interwar Period (1918–1939): a cross-country inquiry on national contextual environments, *Vierteljahreshefte für Sozial- und Wirtschaftsgeschichte,*2016, Vol. 103, 145–177.

[218] Alfred P. Sloan, jr., *My Years with General Motors,* New York 1963.

[219] Helga Edelmann, *Heinz Nordhoff und Volkswagen. Ein deutscher Unternehmer im amerikanischen Jahrhundert,* Göttingen 2003.

[220] Adam Tooze, *The Wages of Destruction: the making and breaking of the Nazi economy,* London 2006.

process innovations, it could lead to a "systemic state" of the production process that cannot be escaped easily.[221] However, a demand-pull strategy can fail when it listens to the "average" customer and neglects the future demand of more "advanced" customers, which could "disrupt" an industry.[222]

Blindness to external technological developments is another threat not only to technology-push innovation strategies. For instance, *Elisha Grey* overlooked the market potential in *Graham Bell's* inventions.[223] Being affixed to a particular idea "*derailed any attempts he (Stone, K. B.) might have made to discover more promising approaches*" to improve speech transmission by cables.[224] This behavior is known as the not-invented-here syndrome (NIH), whereby externally developed technologies are downrated and not well accepted by technology specialists. It can also be described as a mental blockage or a lack of "*absorptive capacity*."[225] The syndrome and its behavioral constraints were extensively studied.[226] Of particular interest to alleviate the syndrome is the role of "gatekeepers" that can easily transfer knowledge from the outside of an organization into its inside.[227]

(8) The branch of business administration covered in this section has long-reaching antecedents, but it developed only relatively lately. As we have chosen to limit this book to developments up to around 1970, we cover only a very small share of the achievements that occurred in the later years. Even this restricted presentation is instructive for at least two reasons. It reports on a branch of business administration that emerged from a strictly functional, R&D-centered view to a much broader view of technology management, which adds licensing in and out of firms, trading inventive knowledge, and develops even particular legal arrangement to this end. Innovation changed its meaning from the first introduction of a new product or new process to a much broader meaning that even encompasses technology management for some users. Technology and innovation management have later been considered as a branch of knowledge management (Fig. 10.6).

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[221] William J. Abernathy/K. Wayne, Limits to the Learning Curve, *Harvard Business Review,* 1974, Vol. 52, 5/109–119.

[222] Clay M. Christensen, *The Innovator's Dilemma: when new technologies cause great firms to fail,* Boston/MA 1997.

[223] David A. Hounshell, Elisha Gray and the Telephone: on the disadvantage of being an expert. *Technology and Culture,* Vol. 16, 1975, 2/133–161.

[224] Neil H. Wasserman, *From Invention to Innovation: Long Distance Telephone Transmission at the Turn of the Century*, Baltimore/London 1985, 72.

[225] Wesley M. Cohen/Daniel A. Levinthal, Absorptive Capacity: a new perspective on learning and innovation, *Administrative Science Quarterly,* 1990, Vol. 35, 1/128–152.

[226] R. Katz/Tom J. Allen, Investigating the not invented here syndrome: a look at performance, tenure, and communication patterns of 50 R&D groups, *R&D Management,* 1982, Vol. 12, 1/7–12; Ulrich Lichtenthaler/Holger Ernst, Attitudes to externally organizing knowledge management tasks: a review, reconsideration, and extension of the NIH syndrome, *R&D Management,* 2006, Vol. 26, 367–386.

[227] Eric von Hippel, *The Sources of Innovation,* Oxford/New York 1988.

Technology management illustrates difficulties that arrive when business administration enters management areas that were previously dominated by experts with totally different backgrounds and cultures.

A conceptual representation of successful technology and innovation management is presented in Fig. 10.7. The figure is mainly self-explaining. However, none of the arrows shown in the figure necessarily represents a static, linear, and deterministic relationship. This makes empirical valuation difficult. It should be noted that the innovation system is characterized both by feed-forward and feedback loops and that business activities have societal consequences far beyond individual firms that perform inventive and innovative activities. The high levels of risk involved in R&D, and in more basic research, in particular, is a concern raised very early. This risk cannot easily be diversified away at the firm level. Therefore, R&D subsidies have been advocated on rational economic grounds.[228]

### *10.3.2 Specialization by Phase: Firm Growth*

As indicated above (Sect. 10.1), specializations within business administration can cut across functional areas of a firm. The analysis of firm growth offers an example of this type of specialization. Other such phases are the start-up or the termination of a firm; the latter can be planned and voluntary or unplanned and forced as in the case of insolvency from unforeseen events. Considering the "going concern," its development is usually described by the term of firm growth, although it might encompass phases of decline or negative growth. Major questions are: How can firm growth be defined? Is growth a continuous and smooth process or discontinuous and erratic? Can growth drivers be identified? The zeitgeist of the upswing years after the Second World War particularly asked such questions.

As reported in Sect. 9.1.3, three elements to define firm growth were developed in 1942: A measure of entrepreneurial performance, permanence or longevity, and a benchmark against which the firm-specific observations should be compared.[229] Although profitability should be considered as the performance measure in a market economy, it has been chiefly substituted by sales for practical reasons. Profitability is not easily measured, particularly in the long run. Longevity is arbitrarily determined in most cases. The selected performance measure determines the benchmark. This definitional element was introduced to make managerial action visible and measurable.

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[228] Richard R. Nelson, The economics of invention: a survey of literature, *Journal of Business,* 1959, Vol. 32, 101–127; Kenneth Arrow, Economic Welfare and Allocation of Resources for invention. In: National Bureau of Economic Research, ed., *The Rate and Direction of Inventive Activity,* Princeton/NJ. 1962, 609–625.

[229] Erich Gutenberg, Zur Frage des Wachstums und der Entwicklung von Unternehmen. In: F. Henzel, ed., *Leistungswirtschaft. Festschrift für Fritz Schmidt,* Berlin/Wien (Vienna) 1942, 148–163.

<table>
<tr><td colspan="4">Knowledge Management</td><td rowspan="2">Other fields of Knowledge Management (for instance: human resource management, marketing research)</td></tr>
<tr><td colspan="3">Innovation Management in a Broad Sense</td></tr>
<tr><td>Beyond Company Limits</td><td>Company internal</td><td>Innovation Management in a Narrow Sense</td><td>Management of Diffusion of Innovations</td><td></td></tr>
<tr><td>Acquisition of new knowledge: via market transactions (including mergers and acquisitions of companies or successful inventive teams); by cooperation wth universities, contract R&D firms; other companies; by learning; by imitation; from customers or suppliers; by non-legal forms of acquisitions</td><td>Acquisition of new knowledge by R&D; by collecting suggestions for improvements; learning by doing; chance events</td><td>First time market introduction of a new product; first time indroduction of a new (manufacturing) process; first time introduction of a new organizational model</td><td>Diffusion management of innovations; adoption by individual users</td><td></td></tr>
<tr><td>Engineering and natural science literature; patent office files</td><td>Storage of new proprietary knowledge; secrecy; acquisition of intellectual property rights; built-in protection mechanisms</td><td></td><td></td><td></td></tr>
<tr><td>Search algorithms</td><td>Accessibility of stored knowledge</td><td></td><td></td><td></td></tr>
<tr><td>Use of own knowledge by bartering, offering property rights, in co-operations</td><td>Use of new knowledge in own innovations</td><td colspan="2"></td><td></td></tr>
</table>

**Fig. 10.6** Knowledge management as a concept including technology and innovation management. Source: Klaus Brockhoff, The Emergence of Technology and Innovation Management, *Technology and Innovation*, 2017, Vol. 19, 461–480, here 467

Definitions describe particular objects with the consequence of ruling out others. As defined by *Gutenberg* above, firm growth considers growth as a result of managerial activity. This rules out those concepts that view growth in analogy to mechanical or biological developments that seem to happen to a firm immediately after its start.[230] Furthermore, if firm growth is considered the result of an extremely

[230] In summary: Horst Albach, Zur Theorie des wachsenden Unternehmens. In: Wilhelm Krelle, ed., *Theorien des einzelwirtschaftlichen und des gesamtwirtschaftlichen Wachstums, Schriften des Vereins für Socialpolitik,* Berlin 1965, New Series, Vol. 34, 9–97, here 33 et seq.

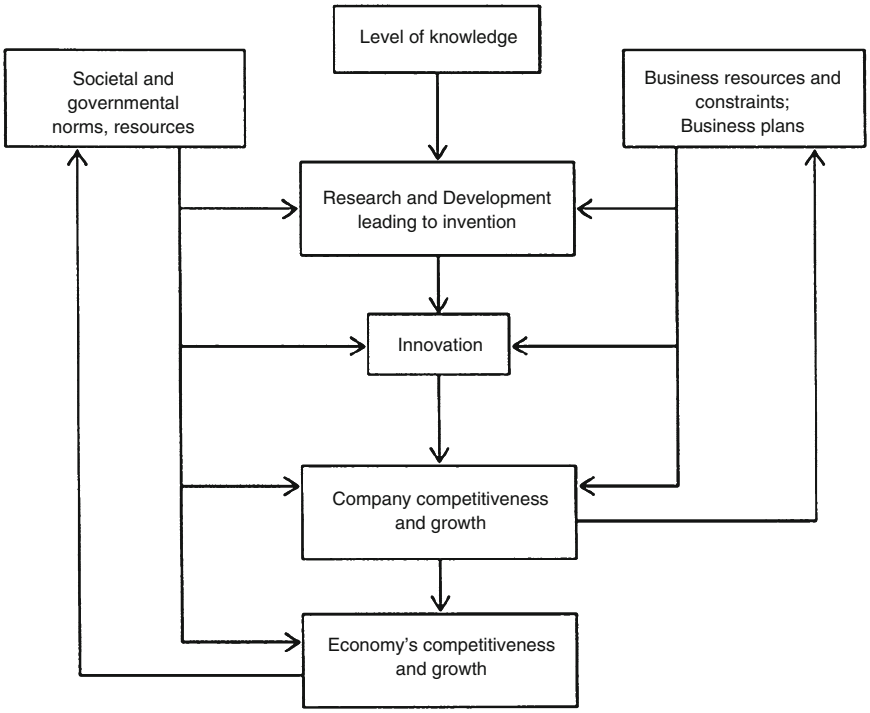


**Fig. 10.7** A conceptual model of business R&D activities and their consequences and constraints. Source: Klaus Brockhoff, The Emergence of Technology and Innovation Management, *Technology and Innovation*, 2017, Vol. 19, 461–480, here 464

large number of small impulses that interact by addition or multiplication, no particular managerial activity can be identified to explain growth. Growth is then a consequence of specific random processes.[231] Growth of firms modeled along this line leads to particular size distributions. However, it was soon recognized that the particular shape of an empirically observed size distribution could not be uniquely traced back to only one type of random process.[232]

Conceptualizing drivers for firm growth can lead to hypotheses and analyses to promote an understanding of growth.[233] This can be used to model growth by

[231] For example: Robert Gibrat, *Les Inégalités Economiques,* Paris 1931; Herbert A. Simon/Charles P. Bonini, The Size Distribution of Business Firms, *American Economic Review,* 1958, Vol. 48, 607–617; Yuji Ijiri/Herbert A. Simon, Business Firm Growth and Size, *American Economic Review,* 1964, Vol. 54, 77–89; Irma G. Adelman, A Stochastic Analysis of the Size Distribution of Firms, *Journal of the American Statistical Association,* 1958, Vol. 53, 893–904.

[232] P. E. Hart/S(igbert) J. Prais, The Analysis of Business Concentration: A Statistical Approach, *Journal of the Royal Statistical Society,* 1956, Vol. 119, Part 2, Series A, 150–175.

[233] For example, in Waldemar Wittmann, Überlegungen zu einer Theorie des Unternehmenswachstums, *Zeitschrift für handelswissenschaftliche Forschung,* 1961, Vol. 13 n.s., 493–519.

simulation. To this end, one group of models used ideas of systems theory with positive or negative feedback loops and complex interacting structures of the assumed drivers.[234] Another group of models assumed particular managerial actions to generate insight into growth processes, such as product innovation and its preparation by research and development.[235] Such models aimed at specifying answers to more theoretically posed questions on an empirical background. Three such questions were addressed repeatedly.

- Is firm growth dependent on firm size, or is it independent of size? The "*Schumpeter* hypothesis" states that size-dependent growth exists, which leads to superiority of large companies—and, without the author wishing it, eventually results in establishing large monopolies and a collapse of capitalism out of itself. Size-dependent growth is explained by only large firms being able to finance and access to the technological progress needed to continue their innovative activity in the long run, the so-called process of "creative destruction."[236] Other authors argue by assuming economies of scale, leading to ever-increasing fixed cost blocks.[237] It is not surprising that empirical tests of the theses lead to very different results,[238] sometimes triggering intense debates about the causes. Astonishingly, *Schumpeter* did not consider a development that had happened during the two decennia preceding the publication of his "Theory." The use of electrical motors caused lower initial investments and lower operating costs per horsepower than steam engines. Some electrical equipment producers offered their motors not only for sale but also for rent. This enabled small enterprises competitive production.[239] Recently, internet-based or biotechnology start-ups show that technical progress can be achieved even without the presumed substantial financial resources. More difficult is innovation in these industries. The growth bottleneck then often lies in financing the necessary network sizes, production capacities, and sales channels. This can then lead to a takeover of smaller companies by larger ones. The question posed here of size-dependent or size-independent

[234] Jay Wright Forrester, *Industrial Dynamics,* Cambridge/MA. 1961*;* Erich Zahn, *Das Wachstum industrieller Unternehmen. Versuch einer Erklärung mit Hilfe eines komplexen*, *dynamischen Modells,* Wiesbaden 1971.

[235] Horst Albach, Zur Theorie des wachsenden Unternehmens. In: Wilhelm Krelle, ed., *Theorien des einzelwirtschaftlichen und des gesamtwirtschaftlichen Wachstums, Schriften des Vereins für Socialpolitik,* Berlin 1965, New Series, Vol. 34, 9–97; Klaus Brockhoff, Unternehmenswachstum *und Sortimentsänderungen,* Köln (Cologne)/Opladen 1966; Alfred Kieser, *Unternehmenswachstum und Produktinnovation,* Berlin 1970.

[236] Joseph A. Schumpeter, *Capitalism, Socialism, and Democracy,* New York/NY. 1942, Chap. 7.

[237] Eugen Schmalenbach, Die Betriebswirtschaftslehre an der Schwelle der neuen Wirtschaftsverfassung, *Zeitschrift für handelswissenschaftliche Forschung,* 1928, Vol. 22, 241–251, here 245.

[238] John R. Meyer/E. Kuh, *The Investment Decision. An Empirical Study,* Cambridge/MA. 1957, find that smaller firms grow faster than larger ones.

[239] Wilhelm Füßl, *Oskar von Miller 1855–1934. Eine Biographie,* München (Munich) 2005, 148 et seq.

growth cannot, therefore, be answered uniformly. This is important in order to reject forms of economic determinism that are based on size-dependent growth.

- Is firm growth constant, or does it occur in growth spurts? Although constant growth in linear or exponential form is a theoretically interesting assumption that facilitates theoretical modeling, it is rarely observed in reality. Nevertheless, there exist models of equilibrium and constant growth. Mainly, those models oriented towards investment theory are based on static or dynamic versions of growth up to equating marginal revenue and marginal cost.[240] Growth maximization, operationalized as capital stock growth, as well as development constrained by the rate of product innovation, can be classified here.[241]

  This reference to constraints clarifies that the growth-determining entrepreneurial decisions may have to deal with upper or lower resource limits, which cannot be eliminated in the short run. The resulting deviations between desired and actual states, e.g., of sales growth, then trigger impulses that supposedly lead towards the desired state. Since these impulses are not continuously initiated and processed and can be delayed or remain ineffective due to random effects, the result is intermittent, unsteady growth. This idea led to stochastic growth models. The uncertainty of product development processes and market success leads to growth spurts and growth retardations. Such models could only be developed after powerful computers became available for simulation runs.[242] Unsteady growth paths of companies may alternatively arise when size-dependent changes of organizational structures seem necessary.[243] It was also made clear that optimization of the growth process requires strategy changes when passing from start-up to substantial size.[244]

  Several types of barriers to growth could be identified together with managerial activities to overcome them. The following growth barriers were identified:

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[240] William J. Baumol, On the Theory of Expansion of the Firm, *American Economic Review,* 1962, Vol. 52, 1078–1087; Critical of W. J. Baumol: Eli Schwartz, Note on a Theory of Firm Growth, *The Journal of Business,* 1965, Vol. 38, 29–33. H. W. Fraser, *A Theory of the Optimum Time Rate of Growth of the Firm,* Ph.D. Diss, Princeton/NJ. 1961; George K. Yarrow, Growth Maximization and the Firm's Investment Function, *Southern Economic Journal,* 1975, Vol. 61, 580–592, examining sensitivity to changes in interest rates and taxes.

[241] Robin Marris, A Model of the 'Managerial' Enterprise, *The Quarterly Journal of Economics,* 1964, Vol. 77, 85–209.

[242] Horst Albach, Zur Theorie des wachsenden Unternehmens. In: Wilhelm Krelle, ed., *Theorien des einzelwirtschaftlichen und des gesamtwirtschaftlichen Wachstums, Schriften des Vereins für Socialpolitik,* Berlin 1965, New Series, Vol. 34, 9–97; Klaus Brockhoff, Unternehmenswachstum *und Sortimentsänderungen,* Köln (Cologne)/Opladen 1966; Alfred Kieser, *Unternehmenswachstum und Produktinnovation,* Berlin 1970.

[243] Edith Tilton Penrose, *The Theory of the Growth of the Firm,* Oxford 1959; Marcell Schweitzer, Zur Bestimmung optimaler Reorganisationsstrategien. In: Erwin Grochla/Norbert Szyperski, *Modell- und computer-gestützte Unternehmensplanung,* Wiesbaden 1973, pp. 281–306.

[244] Thomas Ludwig, *Optimal Expansion Paths of Entrepreneurship,* Wiesbaden 1978.

(a) Need to secure minimum revenues
(b) Need to maintain the financial equilibrium
(c) Capacity limits or fixed-level capacity expansion, including research and development or procurement limitations
(d) Limited rate of organizational adaptation
(e) Limited abilities to bear risks

- How should internal and external growth be linked? Traditionally, business growth is considered as arising from the internal development of resources. Then, it may depend on how much time management devotes to maintaining the firm's status quo or developing it.[245] External growth occurs when corporate financial resources or external financial resources are used to invest in external business ventures. The ultimate goal may be outright acquisition and merger. However, all hybrid forms of organization can be considered. This is particularly important when international expansion is attempted, and specific legal or cultural constraints come into play.

Firm growth thus takes place as a consequence of decisions and does not, as a rule, give rise to steady, uniform growth paths. The managerial activities that foster firm growth cut through basically all company functions. Even invention as a growth driver is not merely restricted to only one functional area (Sect. 10.3.1). With respect to methodology, theoretical model development deals with the complex growth problems by resorting to the ceteris paribus method. Attempts at computer-aided overall optimization of large companies, while theoretically feasible, have not proved successfully applicable in practice.

## 10.4 Observations on Specializations

The specializations presented in the preceding chapters exhibit differences and identities. In all specializations, one observes a path passing through the purposes of science (Sect. 6.5). Generally speaking, business administration as an empirical science advances to develop testable if-then relationships with independent variables that management can use as instruments. This is different from earlier mechanistic or simple time-dependent if-then relationships. Examples are provided by theories of firm growth or marketing. Business administration as a theoretical science became more axiomatic and adopted mathematical modeling as compared with the early years.

Hypotheses are no longer restricted to exclusively economic variables. Instead, gradually, behavioral variables are considered. While some researchers deplore the loss of economic focus or a common core associated with this development, others

[245] Edith Tilton Penrose, *The Theory of the Growth of the Firm,* Oxford 1959.

welcome more realism. Problems arise when terms are used in different specializations but are defined differently. This indicates that the common basis of business administration is weekend or lost.

Some specializations have developed strong integrative forces. Modern finance integrates capital budgeting and traditional financial planning, thus demonstrating that the original fields concern two sides of the same coin. Technology and innovation management has joined R&D management and earlier innovation management in a narrow sense once it became clearly visible that invention as a result of R&D activities was less well marketable than the innovations that could build on the inventions. In marketing, the insight that several marketing functions should be coordinated with respect to some objective in a marketing mix resulted in integrating pricing, advertising, sales, etc. However, marketing of new products became a topic as well of innovation management.

Other specializations seem to disintegrate, which can initiate new specializations with an integrative purpose. Accounting disintegrated into managerial accounting and financial accounting. Controllership or controlling is defined as supporting management by integrating managerial accounting and treasurership. Treasurers rely heavily on financial accounting and finance. Early on, human relations and organizations were strongly associated. As developed by *Fayol* and *Taylor*, alternative internal communication models may serve as examples. More recently, human relations has become a specialization different from organization as yet another specialization. Organization escaped the ceteris paribus-assumption of neutrality with respect to the management of a firm to become concerned with processes and structures, not least with governance issues. Unlike the integrating specializations, a unifying model is missing in the disintegrating specializations.

Contextual influences on the development of specializations are evident. Codified law strongly influences accounting. Economic systems can exert positive or neutral influences on some specializations, such as accounting during the Nazi period, and have negative influences on others, such as marketing at the same time. Imperfect markets can have other consequences than perfect markets, even in the same area of specialization. This could be observed in finance.

The development of specializations is not uniform, which makes cross-functional communication difficult and contributes to a multi-faceted image of business administration. The communication would be alleviated by a common core of "general" business knowledge. Figure 10.8 presents a model of three functional specializations (Function 1 through 3) with identical number of teaching hours represented by their size. Each of these specializations draws on an identical "core" of general business knowledge (Sect. 10.1). This can be generally used concepts, like basics of accounting, finance, or marketing, decision theory and behavior, efficiency, effectiveness, or productivity, organizational alternatives for firms, etc. One cross-functional specialization is shown that draws on the three functional specializations and the core. The use of the functional specializations by the cross-functional specialization is different. More use is made of functional specialization 2 than of the other two functional specializations. The specific shares in Fig. 10.8 are not meant as standards but merely as illustration of possible uses of functional specializations by a cross-functional specialization.

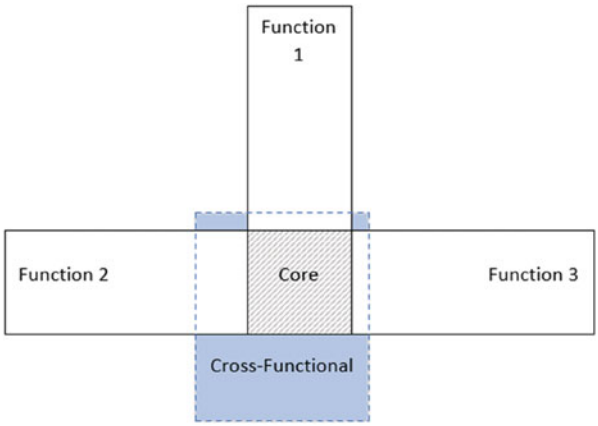


**Fig. 10.8** A model of the interaction of specializations and a core of business knowledge

# Part IV
# Limitations, Further Needs and Lessons Learned

# Chapter 11
# Limitations and Further Needs


**Abstract** Limitations of the preceding three parts of the work are mentioned together with suggestions for further developments.

Any attempt at documenting the history of thought has limitations, and this particular one has more severe limitations. Neither could all regions be covered where management ideas were cultivated, nor could all contributors to their development be named. Accepting this deficit was the only way to keep the exposition short. This shortness is hoped to motivate more in-depth studies on specific fields of ideas and their development. It could even become a research program involving larger numbers of contributors. *Richard Mattessich's "Two Hundred Years of Accounting"* exemplifies the format that such studies might adopt.[1] Regionally concentrated contributions might be compared among each other with respect to selected issues. *Vadim Ivan Marshev's "History of Management Thought"* with its concentration on Russia offers such a contribution.[2]

Presentations of history are neither objective nor flawless. Very early on, objectivity in history was denounced.[3] The author's subjective value judgments in selecting the course of the presentation and his or her comprehension of the topics cannot be avoided. For example, Two authors writing on the theory of capital budgeting presented a partially diverging selection of earlier contributors. One of the authors chose the individual investment project as the focus of his study, while the other author approached the topic from the point of view of capital markets.[4]

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[1] Richard Mattessich, *Two Hundred Years of Accounting Research. An international survey of personalities, ideas, and publications . . .,* London/New York 2008.

[2] Heidelberg/New York 2021; Vadim Ivan Marshev, Formation of management thought in Russia and early USSR from 1800s to the 1920s: Heroes and their contributions, *Journal of Management History,* 2019, DOI:https://doi.org/10.1108/JMH-12-2018-0068.

[3] Ibn 'abd al-Rahman Chaldun, *Mukaddima,* Vol. 1, 1377, reprint Düsseldorf 2000.

[4] Horst Albach, Entwicklung und Stand der Investitionstheorie. In: Horst Albach, ed., *Investitionstheorie,* Köln (Cologne) 1975, 13–26. 427–438; Wolfgang Breuer, Geschichte der Finanzwirtschaftslehre: Investitionstheorie. In: Michael Lingenfelder, *100 Jahre Betriebswirtschaftslehre in Deutschland,* München (Munich) 1999, 157–168.



K. Brockhoff, *Management Ideas*, Contributions to Management Science,
https://doi.org/10.1007/978-3-031-09962-5_11

Consequently, when using a historical approach to management, it is best to check the author's point of view and its relevance for the user. Another divergence from objectivity appears to be culture-bound. In this author's perception, different publication cultures exist in disciplines and between countries. It was only in passing to note that in one-party non-democratic regimes, a reference has to be made to the wisdom of the party and its historical leaders at the beginning and the end of a presentation. Less restrictive is a culture of introducing a topic as a cumulative success history to which another success is added. This ignores failures and blind alleys on the road to the actual level of knowledge, which are important as well. What really counts is expressed in an aphorism by philosopher and physics professor *Georg Christian Lichtenberg* (1742–1799): "*One may compare the search for knowledge with shooting at a wooden bird at a shooting contest . . . The one who shoots down the crown (the bird, K. B.) should consider that the shots of his precursors have all contributed something . . .*" [5] This includes the shots that failed! Furthermore, one should be aware that the variety of thinking might be reduced when schools of thought develop. It would not be surprising if highly renowned teachers would strongly influence their students' thinking. Large schools could produce a "majority opinion" easier than developing a majority among many smaller schools or individuals.

Despite applying great care, presentations of history are not without fault. Even experts might overlook something. Furthermore, authors of earlier publications may have changed their arguments over time, which might appear in successive editions of their work. Therefore, it is important to refer always to the edition used. For example, we have reported above that *Eugen Schmalenbach* changed his mind on the objective of a firm quite considerably depending on the economic context (Sect. 8.1). While finding the first editions of many works in one or the other university library in earlier years was difficult, this has become easier because of digitalization projects in many countries.

It has been mentioned that economic, social, and technological facts represent a context or frame for the development of management thoughts. In this respect, it is impossible to develop managerial laws that apply independently of time and context. This can lead to false conclusions, particularly when a masterpiece of correctly forecasting stock market prices is expected.[6] The expectation cannot be met because we have evidence that stock market prices follow a random walk around some trend.[7] In Germany, between the later 1960s and the middle of the 1990s, it was

[5] Georg C. Lichtenberg, *Einfälle und Bemerkungen,* Heft J, 1789–1793, Berlin/Weimar 1975, No. 114,.

[6] Emanuel Derman, *Models.Behaving.Badly – Why confusing illusion with reality can lead to disaster, on Wall Street and in life,* New York/NY 2011.

[7] Eugene F. Fama, The Behavior of Stock Market Prices, *The Journal of Finance,* 1965, Vol. 65, 34–105; Benoit Mandelbrod/Howard M. Taylor, On the Distribution of Stock Price Differences, *Operations Research,* 1967, Vol. 15, 1057–1062. Counterview: Tom Doan, Stock Market Prices do not Follow Random Walks: Evidence from a Simple Specification Test, *Review of Financial Studies,* 1988, Vol. 1, 41–66.

argued that business administration should no longer be taught at universities; at another time, the present author was told that university research was his private business alone. It is interesting that if earthquake or volcano eruption forecasts fail, the respective fields can convince politicians and sponsors to add to their research money.

The business context in a market economy is unstable; observations show that it does not develop along a predefined historical path that could be forecasted easily. A stable context would, indeed, make theory development easier. As a societal model, Marxism holds a totally different opinion on this: "*The impetus of societal events forces us to recognize the working of societal regularities. However, the bourgeois class position requires to deny the objective determinism of all societal appearances and processes because its recognition would unavoidably implicate the victory of socialism over imperialism and the correctness of historical materialism according to laws*".[8] In a world like this, firms receive plans that they have to execute and resources that they have to use and produce outputs according to the plan: autonomy of the management is minimal, and this is business thought.

[8] Wolfgang Eichhorn/Günter Kröber, Das Gesetz und die bewusste Ausnutzung gesellschaftlicher Gesetze. In: Autorenkollektiv, *Marxistische Philosophie,* 2nd ed., Berlin 1967, 296–352, here 321.

# Chapter 12
# Lessons Learned: Reasons for Histories of Management Ideas


**Abstract** The development of management ideas was discussed in the preceding three parts of the work. It is shown here in what ways the history of ideas can be beneficial. Consequently, it should have its place in teaching and research.

What can be learned from a business administration history and the thoughts that the discipline developed?

- The so-called "linear model" of scientific development (Sect. 6.2)—whereby basic research ignites applied research, which leads to development and eventual application—is not exclusively relevant in business administration. Instead, practice can develop interesting management ideas, which may become the subject of research only later. For instance: The need to document economic activities and establish rules to secure transactions influenced economic habits that only later found a theoretical basis.

  More recently, so-called exploratory social science has been advocated. It should develop its ideas neither by looking back nor by analyzing data but by trying out new ideas in the real world.[1] In the same sense, the firm is interpreted as an institution to constantly engage in experiments.[2] However, what guides the selection of experiments?
- Initially dominated by accounting, science-based business administration has developed a broad spectrum of specializations. Since the 1970s and the enormous advances in research, these specializations developed into separate disciplines. Intense competition among university instructors fired by rankings, research grants, etc., can lead to further specialization. Some observers criticize that thereby a common core of business administration as a discipline is gradually getting out of sight. If so, it could be dangerous with respect to applying the knowledge generated to management practice, where problems can typically cut

[1] Sir Geoff Mulgan, The Case for Exploratory Social Sciences, Paper 1, The New Institute, Hamburg 2021, 17.

[2] Thomas Hutzschenreuter, *Das Unternehmen als Versuch und Institution,* München (Munich) 2021.



K. Brockhoff, *Management Ideas*, Contributions to Management Science,
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across the boundaries of specializations. Fighting this danger by new specializations, such as project management or process organizations of a specific kind, does not guarantee a solution. In Sect. 10.4 a model to save the core is suggested.

- New paradigms are not only a result of older paradigms failing to solve a "puzzle." Furthermore, data for testing their effectiveness and techniques for their application are needed. One of the examples presented above (Sect. 3.2), the answer to the compound interest rate puzzle, illustrates this learning. *Leibniz* was successful in closely analyzing the problem based on a case, he developed an analytical method to spare users cumbersome computations to calculate the sum of a geometrical series, and he offered a set of tables from which to read the logarithms. The same was observed in capital budgeting (Sect. 10.2.4). In a modern language, the triple of logic, software, and hardware together lead to a new paradigm (Sect. 6.3) to solve a persistent problem.
- Knowing the history of thought of a particular area in a discipline avoids uneconomic use of resources to re-invent concepts or paradigms that had been available earlier as well as to avoid getting repeatedly into blind alleys. One of the concepts mentioned above is *Porter*'s Value Chain, which had been presented much earlier with a different objective in mind but in a very similar format. Apart from direct plagiarism, the literature abounds with examples that re-invent earlier concepts: the break-even point, critical value analyses, decision trees, and more examples are mentioned by *Dieter Schneider*[3] (Sect. 5.4.2). It is not uncommon that a concept only appears to offer something entirely new just because it uses a new terminology.
- Biased representation of concepts or paradigms can be discovered and avoided if the underlying history is known. The business objective of shareholder value has acquired a bad reputation in recent years because it is presented as having a short-term perspective and of pushing aside the interests of other stakeholders. This presentation is grossly distorted if compared with the original ideas by *Alfred Rappaport*, who explicitly supports long-term strategies of firms, which have to incorporate the interests of all relevant stakeholders to secure survival in a competitive economic environment. Instead of a "harvesting strategy" *Rappaport* recommends a long-term "share-building strategy." Annual earnings are considered an "unreliable bottom line" for managerial decisions.[4]
- Being critical of earlier theories can ignite new ideas to overcome their weaknesses or failures. The breakthrough portfolio model by *Harry Markowitz* explained why investors do not concentrate their resources on *one* financial asset, namely the one promising the highest expected return.[5] However, the original model does not apply to the "small" investor because it does not offer

[3] Dieter Schneider, Management-Fehler durch mangelndes Geschichtsbewusstsein in der Betriebswirtschaftslehre, *Zeitschrift für Unternehmensgeschichte,* 1984, Vol. 29, 114–130.

[4] Alfred Rappaport, *Creating Shareholder Value. The New Standard for Business Performance,* New York/London 1986.

[5] Harry Markowitz, Portfolio Selection, *Journal of Finance,* 1952, Vol. 7, 77–92.

integer solutions, and it fails to apply to the "large" investor who can influence asset prices by his demand. Both weaknesses lead to a search for better solutions from expanded models.

- Knowing how a theory has developed makes it easier to understand it. This can be attractive for those who dislike more "formal" (or mathematical) representations of a theory.[6]
- Business theories and management ideas develop with a particular context in mind, whether implicitly or explicitly. Their later application should study whether this context still applies or has changed. The latter case may call for changes or adaptations in the earlier theories. Few, if any, business theories appear to be context-free. Knowledge of contextual conditions creates great sensibility in applying earlier theories and ideas.[7] The same arguments are raised concerning economics.[8] One example is the development of ideas for a theory of cost curves: Agricultural production is not identical to industrial production, and thus calls for different paradigms (Sect. 9.3.2). As a rather extreme example, it was mentioned above that in a planned socialist economy, even a basic business principle like guaranteeing a financial balance could be disregarded at all times by the "loss planned firm" with continuous subsidies.[9] The unique context cannot be disregarded when dealing with firms in a market economy.
- In the very long run, management ideas were developed for different industries, originated from practical experience and later from theoretical work, and had different regional focus (Fig. 12.1).
- Terminology and its usage benefits substantially from a history of thought. In particular, this has three meanings:
  - The meaning of terms may change over time. An example is the word "marketing," which had a more narrow meaning at the beginning of the twentieth century than in the 1960s (Sect. 10.2.3). From equating the meaning of marketing to a particular "instrument," such as sales or advertising, it grew into a joint optimization of instruments in the marketing mix, and finally to an management "philosophy" putting customers at the center of business strategies. Yet, another example: earlier literature differentiated between "technology" (a precept of techniques) and "technique," particularly in French and German. This differentiation is largely lost due to the dominance of English in

[6] Dieter Schneider, Management-Fehler durch mangelndes Geschichtsbewusstsein in der Betriebswirtschaftslehre, *Zeitschrift für Unternehmensgeschichte,* 1984, Vol. 29, 114–130.

[7] Dieter Schneider, Management-Fehler durch mangelndes Geschichtsbewusstsein in der Betriebswirtschaftslehre, *Zeitschrift für Unternehmensgeschichte,* 1984, Vol. 29, 114–130.

[8] Joseph A. Schumpeter, *History of Economic Analysis,* 6th ed., Oxford 1966, 4 et seq.

[9] Академия Наук СССР (Коллектив авторов), Полтическая Экономия (Political Economy), Москьа (Moscow) 1962, Глава (Chapter) 27.

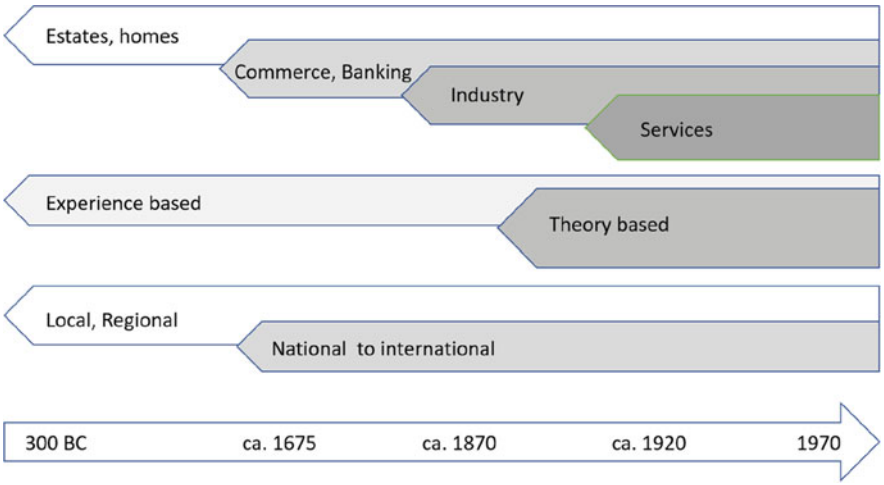


**Fig. 12.1** A sketch of business administration's focal areas of development

the past decennia. When *Michael Porter* writes on "technology management"[10] it means in large parts the management of established techniques.

– The meaning of terms can differ between branches of business administration. An example is "diversification." In finance it signifies a portfolio of financial assets (Sect. 10.2.4). In marketing or business strategy, it stands for a new product offered to a new market, as defined by the "*Ansoff* Matrix" (Sect. 10.2.3). The differences can be elicited by history of thought.
– Different terms may represent identical concepts. The example of "matching fund," "Marx-Engels Effect," and "Lohmann-Ruchti Effect," all meaning the same, was shortly mentioned in Sect. 4.1 (1).

- Management thought and business theories are not only discovered in easily available resources, for instance, by searching a specific medium like the internet. Although many of the earlier printed resources become available in electronic form, more is hidden from electronic search.

These learnings call for a re-integration of history of thought into the programs taught at business schools. The timeline according to which business knowledge can be organized is of great help not alone for students to develop a better and more profound understanding of their discipline. University regulations with the aim to shorten programs or to allow for more specialization have contributed to eliminating historical aspects from the curricula. This could be corrected. The frequently quoted metaphor that claims present-day scientists are merely dwarfs who benefit from their

[10]Michael Porter, *Competitive Advantage. Creating and Sustaining Superior Performance,* New York 1980.

**Fig. 12.2** Standing on the shoulders of giants, even if they are handicapped. Source: Nicolas Poussin, The Blind *Orion* Searching for the Rising Sun (guided by *Cedalion)*, 1658, Metropolitan Museum of Art (detail). Diana, also goddess of the moon, is watching from above

standing on the shoulders of elder giants [11] (Fig. 12.2 [12]), attributed to Bernhard of Chartres (?–1126),[13] cannot correctly describe a world where the giants have disappeared or become invisible. Even if giants are not perfect but handicapped they may have much to offer to the dwarfs.

The older giants should not only be present mentally but also physically. In Sect. 5.4.2 we discussed that knowledge may get lost. Great care needs to be taken to prevent physical loss of knowledge because documents dissolve, get lost or cannot be accessed at later times. The knowledge of antique authors was mostly documented on papyrus, which could easily crumble away. Copying from papyrus to parchment on the request of *Charlemagne* at around 800 AC was a major cultural achievement to save the earlier knowledge.[14] Today, we discuss upward compatibility of storage media or the accessibility of the cloud.

[11] Robert K. Merton, *Standing on the Shoulders of Giants. A Shandean Postscript*, Chicago/Il 1965.

[12] For an interpretation see: The Met, Insider Insights at: youtube.com/watch?v=X4uYL09Hum4, accessed January 22, 2022.

[13] John of Salisbury, *Metalogicon,* 1159 gave this reference. It is debated by Umberto Eco. Daniel McGarry, *The Metalogicon, A Twelfth-Century Defense of the Verbal and Logical Arts of the Trivium*, trans. Berkeley/CA 1955. The Trivium was the core of university teaching at the time.

[14] Johannes Fried, *Karl der Grosse. Gewalt und Glaube. Eine Biographie,* München (Munich) 2013, 300 (= Johannes Fried, *Charlemagne*, Cambridge/MA 2016).

# Index





K. Brockhoff, *Management Ideas*, Contributions to Management Science,
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